Roland

MIDI MIDI PAD CONTROLLER

PAD-80

Owner's Manual

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Udskiftning må kun foretages af en sagkyndig, og som beskrevet servicemanual.

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Pariston saa vaihtaa ainoastaan alan ammottimies.

Bescheinigung des Herstellers /Importeurs

Hiermit wird bescheinigt, daß der/die/das

ROLAND MIDI PAD CONTROLLER PAD-80

(Gerat, Typ. Bezeichnung)

in Übereinstimmung mit den Bestimmungen der

Amtsbl Vfg 1046 / 1984

(Amtsblattverfugung)

funk-entstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Roland Corporation Osaka / Japan

Name des Herstellers/Importeurs

RADIO AND TELEVISION INTERFERENCE

"**Warning** - This equipment has been verified to comply with the limits for a Class B computing device, pursuant to Subpart J, of Part 15, of FCC rules. Operation with non-certified or non-verified equipment is likely to result in interference to radio and TV reception."

The equipment described in this manual generates and uses radio-frequency energy. If it is not installed and used properly, that is, in strict accordance with our instructions, it may cause interference with radio and television reception.

This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J, of Part 15, of FCC Rules. These rules are designed to provide reasonable protection against such a interference in a residential installation. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by the following measure:

Disconnect other devices and their input/output cables one at a time. If the interference stops, it is caused by either the other device or its I/O cable.

These devices usually require Roland designated shielded I/O cables. For Roland devices, you can obtain the proper shielded cable from your dealer. For non Roland devices, contact the manufacturer or dealer for assistance.

If your equipment does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures:

- Turn the TV or radio antenna until the interferences stops.
- Move the equipment to one side or the other of the TV or radio.
- Move the equipment farther away from the TV or radio.
- Plug the equipment into an outlet that is on a different circuit than the TV or radio. (That is, make certain the equipment and the radio or television set are on circuits controlled by different circuit breakers or fuses.)
- Consider installing rooftop television antenna with coaxial cable lead-in between the antenna and TV.

If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet prepared by the Federal Communications Commision:

"How to Identify and Resolve Radio-TV Interference Problems."

This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

Please read the separate volume "MIDI", before reading this owner's manual.

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■ Important Notes

POWER

- Be sure to use the supplied AC adaptor (for 120 220 or 240V depending on the voltage system in your country) Using any other adaptor may cause problems. Do not use the supplied AC adator with any other unit than the PAD 80
- Make sure that the unit is turned off before plugging the power plug into the socket.
- Do not use the same socket used for any noise generating unit (e g a motor or variable lighting system) or large power consuming unit.
- When disconnecting the power plug from the socket, hold the plug to avoid damaging the cord
- Handle the cord gently
- When the unit is not to be used for a long period of time disconnect the power cord from the socket.
- When making connections, be sure that this unit and all the other units are turned off

LOCATION

Do not use this unit in the following conditions
in extreme heat (e.g. where it may be affected by direct sunlight or near a heater etc.)
in extreme humidity
where it may be affected by dust
where it may be affected by vibration

- Operating this unit near a neon, fluorescent lamp, TV or CRT display may cause noise interference If so, change the position or angle of the unit.
- Operating this unit near a TV or radio set may cause picture trouble in the TV and noise on the radio If this happens, move the unit away from it.
- Do not drop or place anything heavy on the power cord

CLEANING

- Use a mild detergent and a soft cloth for cleaning.
- Do not use solvents such as thinner or alcohol.

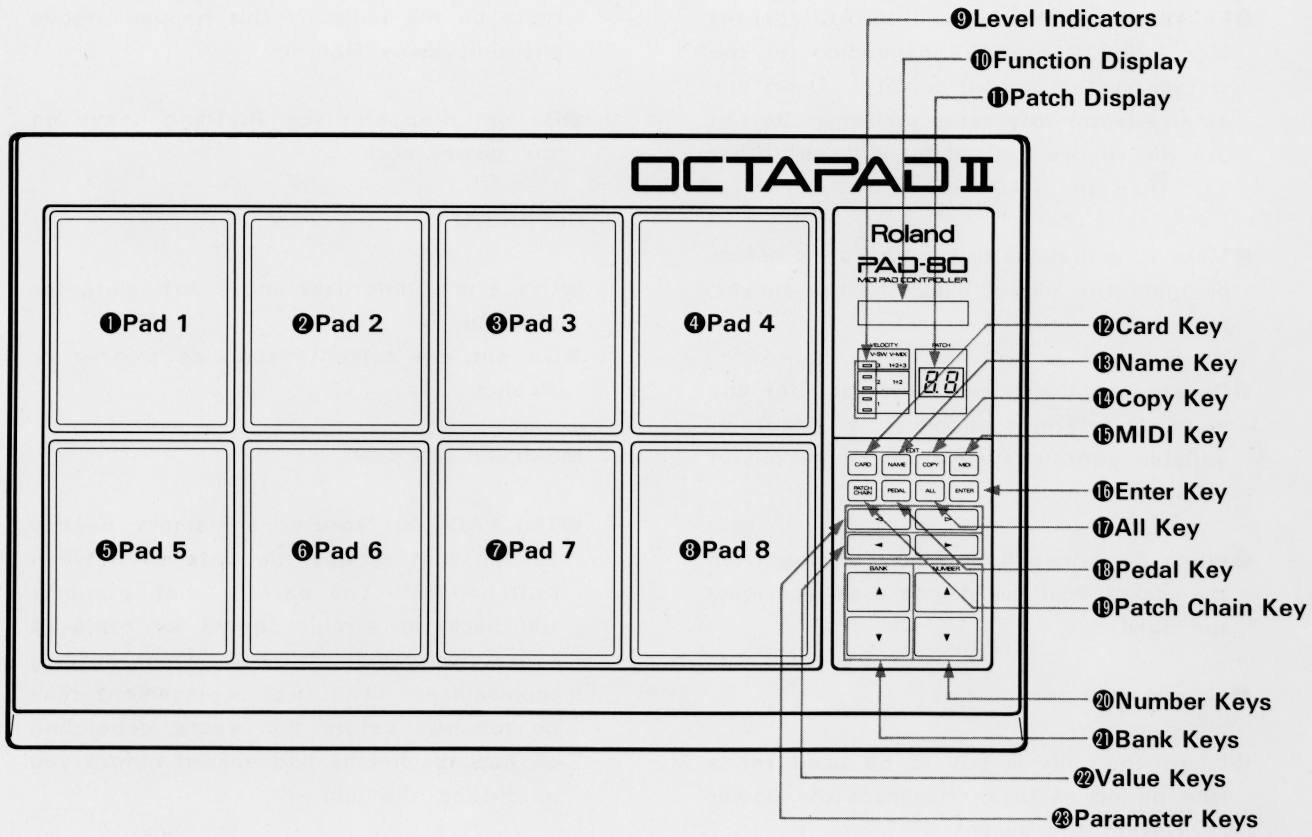
MEMORY BACKUP

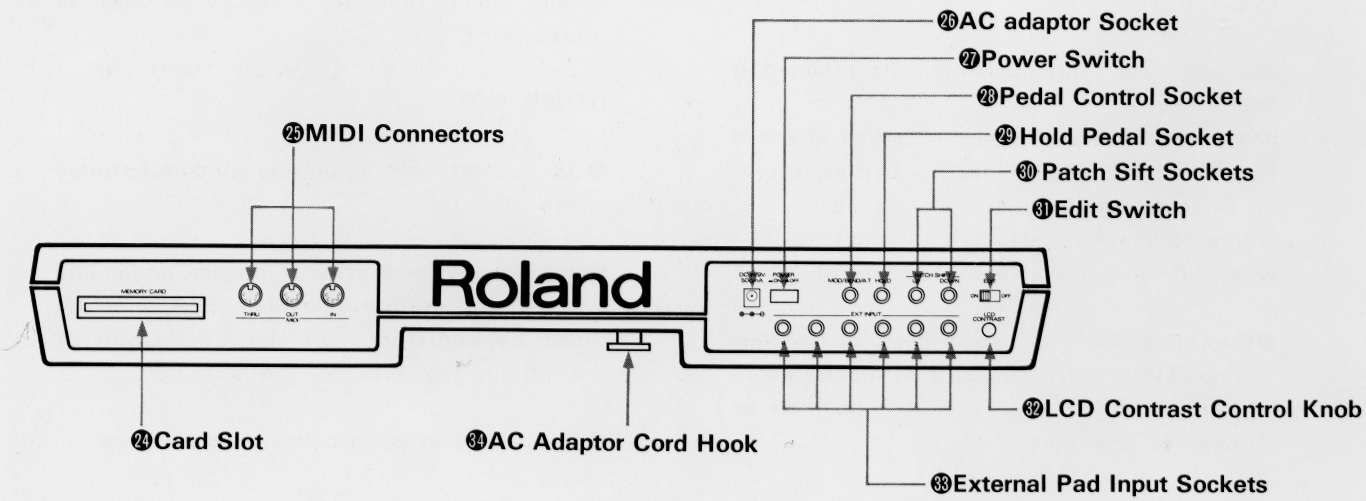
- The PAD−80 features a memory backup system that retains the data even when switched off The battery that supports the back up circuit should be replaced every five years Call Roland for battery replacement. (The first replacement may be required before five years, depending on how much time had passed before you purchased the unit.)
- Make it a rule to save any important data you have programmed onto a memory card, or make a memo to avoid accidental erasure of your data If it happens to be erased while being repaired there is no way to restore it.

OTHER NOTES

- Do not let any liquid or solid substance into the unit
- View the display from a proper angle and in an appropriate contrast (The contrast can be adjusted with the LCD Contrast Knob on the rear of the unit.)
- Do not push or hit the display hard

■ PANEL DESCRIPTION





1–8 Pads 1–8

Hit the pads as you would a drum kit. The pads are also used for editing a Patch.

9 Level Indicators

These indicate the volume obtained by hitting the pads.

10 Function Display

This shows the current condition of the PAD 80.

11 Patch Display

This indicates the Patch number currently selected.

12 : Card Key

Push this key to call a Patch on a memory card or save or load data.

13 Name Key

Push this key to name a Patch.

14 Copy Key

Push this key to copy a Patch.

15 MIDI Key

Push this key to set MIDI parameters.

16 Enter Key

Push this key to write the value you set.

17 All Key

Use this key to set the same value for all pads.

18 Pedal Key

Use this key to set the parameters related to a foot volume pedal.

19 Patch Chain Key

Push this key to set the Patch Chain function or to use the function.

20 Number Keys

Use these keys to change the number of a Patch, or to set a note number as a note name.

21 Bank Keys

Use these keys to change the bank of a Patch or to select a patch chain track.

22 Value Keys

Use these keys to change the values of parameters.

23 Parameter Keys

Use these keys to select a parameter

24 Card Slot

This is where a memory card is connected.

25 MIDI Connectors

Connect a MIDI device via these sockets.

26 AC Adaptor Socket

Connect the supplied AC adaptor to this socket.

27 Power Switch

Push this switch to turn on or off the unit.

28 Pedal Control Socket

Connect a foot volume Pedal (EV-5/EV-10 optional) for controlling the modulation, pitch bender or aftertouch.

29 Hold Pedal Socket

Connect a footswtich (DP-2 optional) for controlling the Hold effect.

30 Patch Shift Sockets (UP/DOWN)

Connect a footswitch to change Patches.

31 Edit Switch

This selects the Play or Edit mode.

32 LCD Contrast Control Knob

This adjusts the contrast of the Function Display.

33 External Pad Input Sockets

Connect external pads (e.g. PD-21/PD-31)

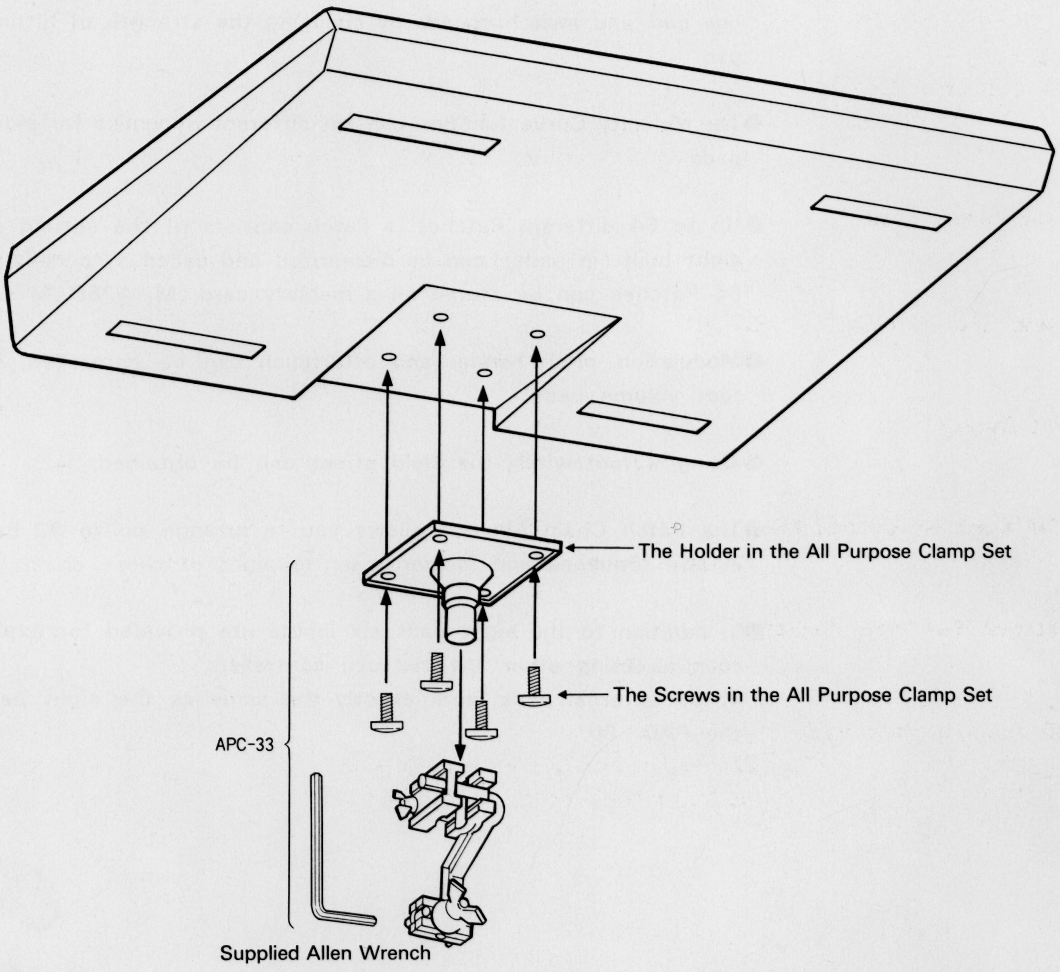
34 AC Adaptor Cord hook

This is where the AC cord is rolled up.
(to prevent the cord pulling out.)

■ All Purpose Clamp Set

To install the PAD−80 on a drum stand, use the supplied All Purpose Clamp Set as shown below

Attach the Stand Holder to the bottom of the PAD−80 using the supplied screws (5 × 35mm)



■OUTLINE OF THE PAD-80

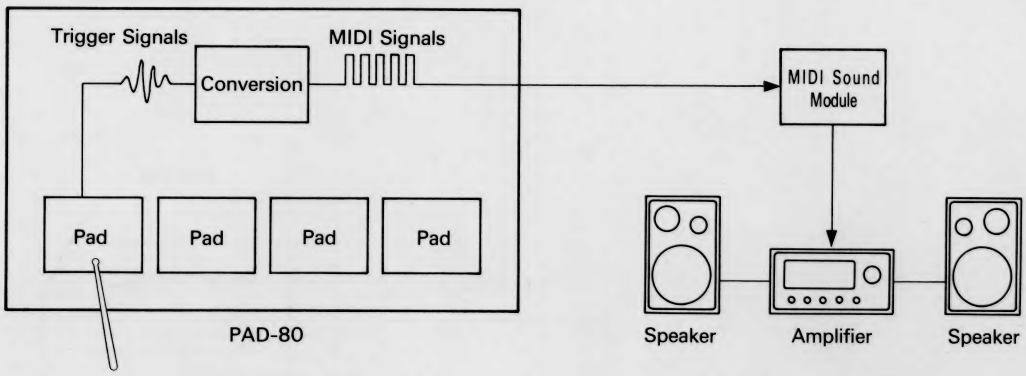
1 Features of the PAD-80

The PAD-80 is a MIDI compatible eight pad controller that allows you to play various types of MIDI sound sources.

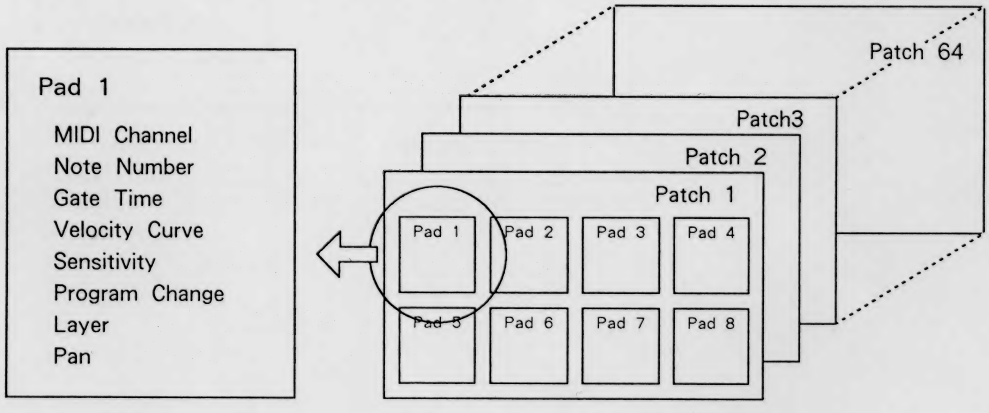
- **Any MIDI sound sources, from synthesizer to a drum machine can be assigned to any of the eight pads.**
- **The Layer function allows you to assign three different sounds to one pad, and switch sounds by changing the strength of hitting the pad.**
- **The Velocity Curve function can set different dynamics for individual pads.**
- **Up to 64 different Patches (a Patch consists of the setting of the eight built-in pads) can be memorized and called at once. Another 64 Patches can be stored on a memory card (M-128D, M-256E).**
- **Modulation, pitch bender and aftertouch can be controlled with a foot volume pedal.**
- **Using a footswitch, the Hold effect can be obtained.**
- **The Patch Chain function allows you to arrange up to 32 Patches in any sequence and memorize up to eight of these chains.**
- **In addition to the eight pads, six inputs are provided for expansion such as using other external pad controllers.**
  These external pads work exactly the same as the eight pads on the PAD-80.

2 Concept of the PAD−80

The PAD−80 converts the trigger signals (which are generated by hitting the pads) into MIDI messages. The MIDI messages, then, play the MIDI sound module connected.



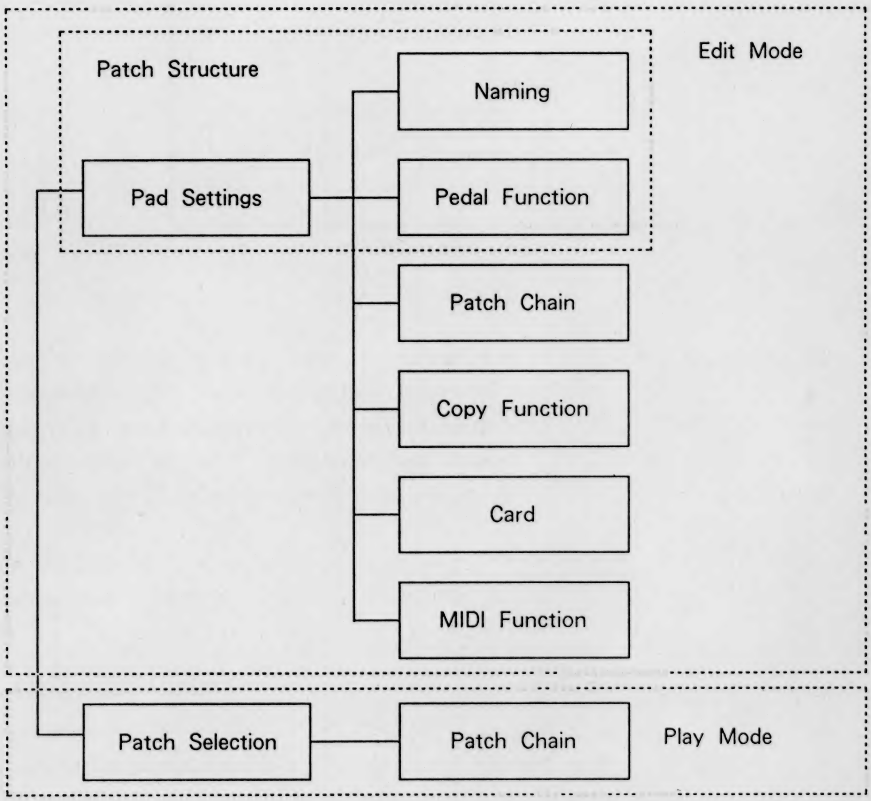
First of all you should specify which MIDI sound module (MIDI channel) and which voice (Note number) should be played. Then you may set other parameters such as velocity curve, gate time etc, for each pad separately The parameter settings of the eight pads can be written into memory as a Patch. Up to 64 Patches can be stored.



To use the PAD 80, it is essential to set the parameters for each pad individually depending on the type of sound module used.

3. Operation

The PAD−80 can be switched between the Play or Edit mode. Turn to the Play mode to play the pads, and to the Edit mode to change parameters of a Patch and so on.



【Edit Mode】

● Pad Setting

You can set the parameter (e.g. MIDI channel, Note number velocity curve, etc,) or each pad.

● Naming

You can name each Patch.

● Setting the Pedal Function

You can set how the foot volume controls each effect.

● Setting the Patch Chain

You can set up to 32 Patches in any sequence you like.

● Copy Function

Patch data can be copied to another location (=Patch)

● Memory Card

The entire Patch data in the internal memory can be saved onto a memory card. Also, the entire data on a memory card can be loaded back to the internal memory

● MIDI Functions

These include how the external MIDI device controls the PAD 80, and data transfer between the PAD 80 and another MIDI device.

【Play Mode】

There are two different ways for playing Patches the one that allows you to play patches you select, the other that plays patches in the sequence you have set with the Patch Chain function.

Basic Course

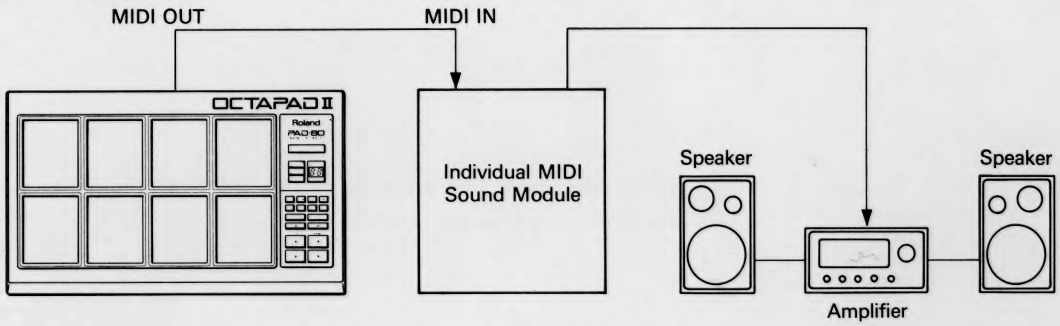
This chapter explains the basic operation of the PAD−80. When using specific Roland products TR 505, TR−626 or D 110, you can make the system ready to be played by taking the following simple procedure ([1] Using specific Roland Products) If you use other sound sources or specific Roland Products you use does not retain the original settings, follow " [2] Basic Settings"

1 Using Specific Roland Products

When using any of the following Roland products, you can play the PAD 80 using the Factory Preset data.

- **TR 505**
- **TR-626**
- **D-110**

1. Connections



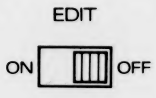
2. Playing the Factory Preset Data

Step 1 Turn the PAD−80 on.

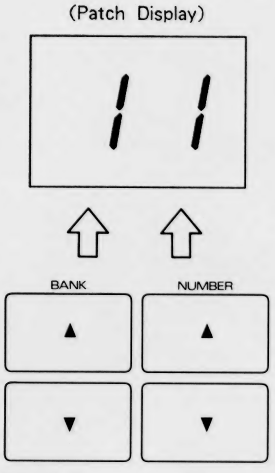
Step 2 Turn the sound module on.

Step 3 Set the receive channel of the sound module and the key number assignment to the initial settings preprogrammed by the manufacturer (See the owner's manual of the relevant sound module.)

Step 4 Set the Edit Switch on the rear of the PAD 80 to OFF



Step 5 Using the Bank and Number Keys, call a Patch that corresponds to the connected sound module.

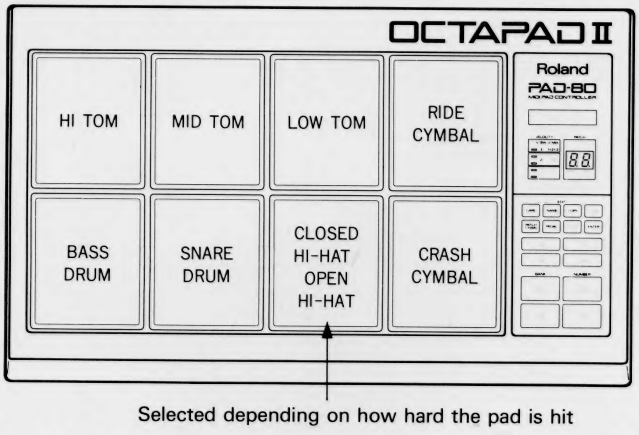


The Patches correspond to the sound modules as shown below

Product	Function Display	Patch Number
TR-505	TR-505(DRUM)	11
	TR-505(LATIN)	12
TR-626	TR-626(DRUM)	13
	TR-626(LATIN)	14
D-110	D-110(PART 1)	15
	D-110(PART 2)	16

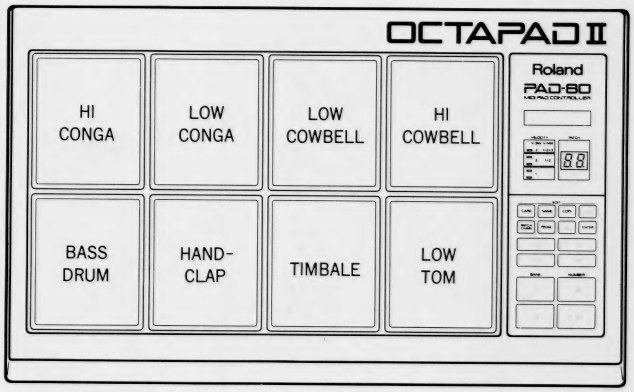
Step 6 **Hit the pads, and the following sounds will be played.**

TR-505 (Patch Number 11)



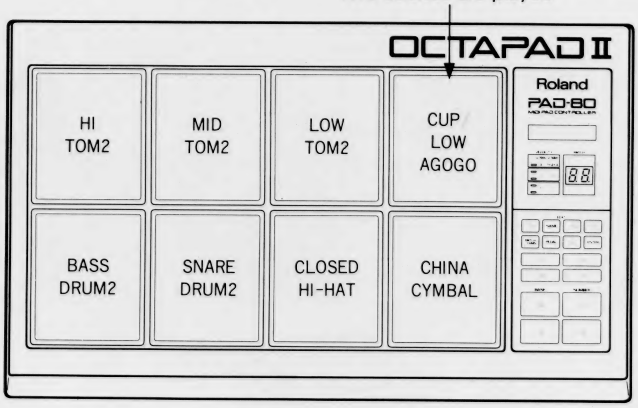
Selected depending on how hard the pad is hit

(Patch Number 12)

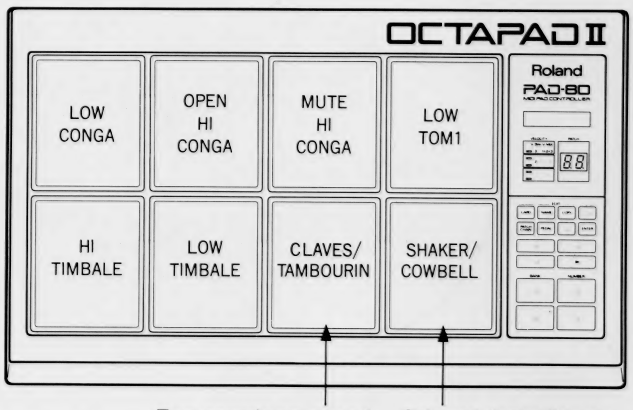


TR-626 (Patch Number 13)

Two sounds are played



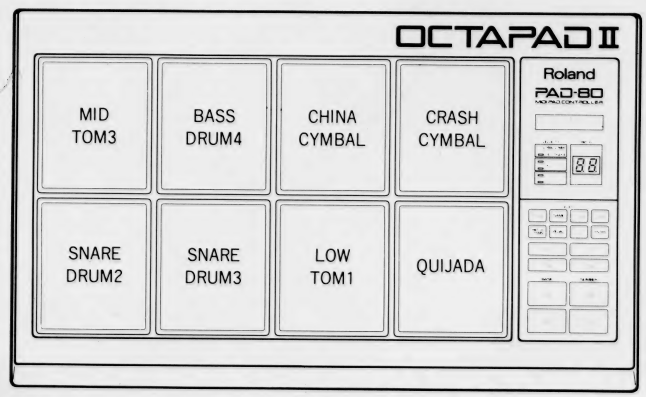
(Patch Number 14)



Two sounds are played

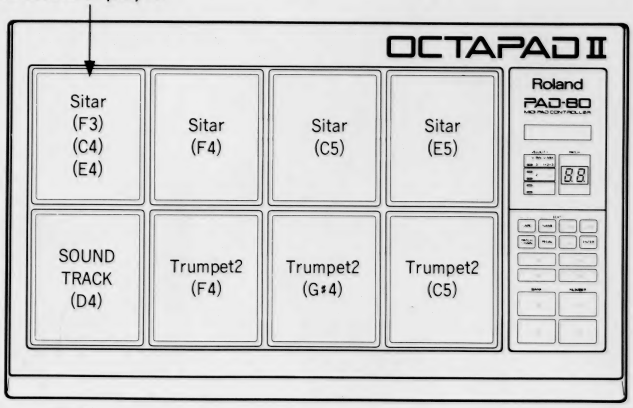
Selected depending on how hard the pad is hit

D-110 (Patch Number 15)



(Patch Number 16)

A chord is played

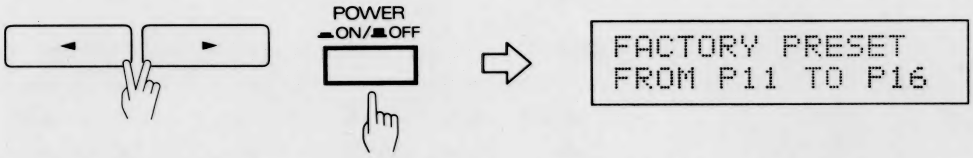


3. Restoring the Factory Preset Data

The Factory Preset data (data preprogrammed by the manufacturer) can be recalled at any time even after being edited.

Step 1 **Turn the PAD−80 off.**

Step 2 **Turn the unit on again while holding the two Value Keys down.**



This procedure will recall the factory preset data into Patches 11 to 16, leaving the Patches 17 to 88 intact.

2 Basic Settings

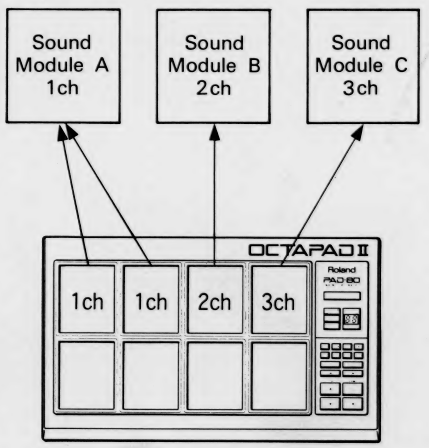
To play the PAD 80, at the very least, the MIDI channel and Note numbers should be set according to the sound module used.

1. Setting the MIDI Channels and Note Numbers

【About the MIDI Channels and Note Numbers】

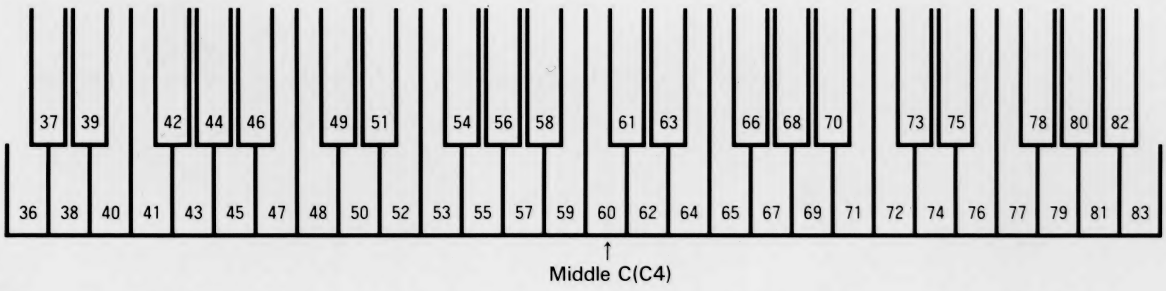
●MIDI messages are transmitted and received between two MIDI devices on the set MIDI channel. In other words, if the MIDI channel of the receive unit and that of the transmit unit are not set to the same number the MIDI data cannot be communicated between the receiver and transmitter. MIDI channels 1 to 16 can be set separately for each pad of the PAD 80.

(Assign a MIDI channel to each sound module)



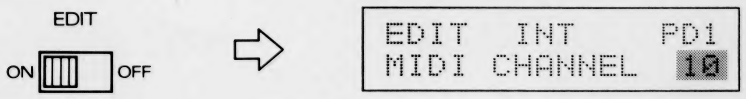
●Note numbers are pitch messages varying from 0 to 127 60 corresponds to the middle C (C4) on a keyboard. When using a synthesizer the pitch corresponding to the set Note number will be played. When using a rhythm machine,the corresponding drum voice will be played.
The PAD−80 allows you to set a Note number for each pad separately

(Note Number assignment to the keyboard)



【Procedure】

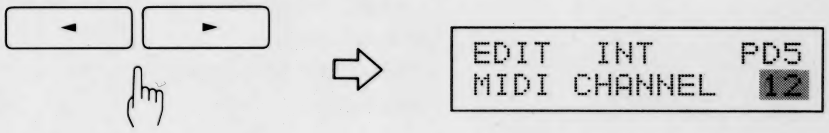
Step 1 **Turn the Edit Switch on the rear of the PAD 80 to ON.**



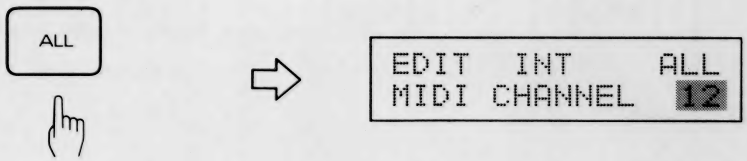
Step 2 **Hit the pad whose MIDI channel or Note number you wish to set.**

***If the Pad Number is not shown in the display hit the pad harder**

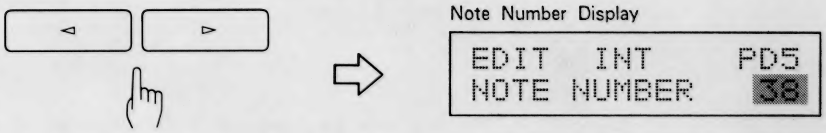
Step 3 Using the Value Keys, set the MIDI channel.



Step 4 To set the MIDI channels of all the pads to the same number push the All Key

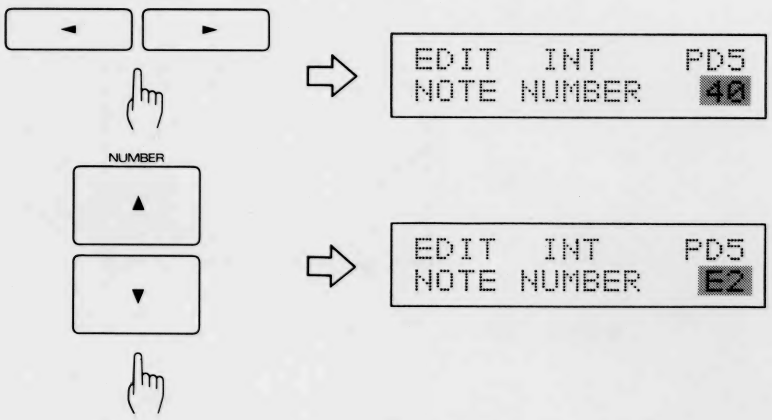


Step 5 Using the Parameter Keys, change to the Note number display



Step 6 **Using the Value or Number Keys, set the Note number desired.**

***Use the Value Keys to set a Note number and the Number Keys to set a Note name.**



Step 7 **Repeat Steps 2 to 6 as many times as necessary to set the MIDI channels and Note numbers for the other pads.**

Step 8 **Push the Enter Key**

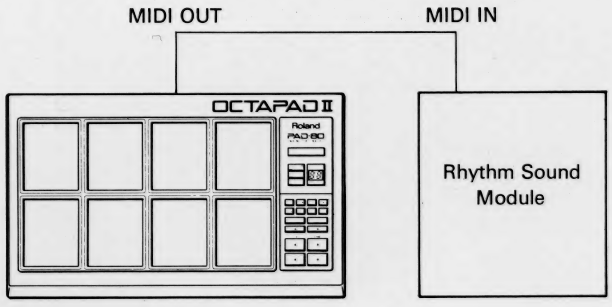
Now, the MIDI channel and Note numbers you have set for the eight pads have been written in memory as a Patch.

Step 9 **Return the Edit Switch to OFF**

2. Setting Variations according to the Sound Sources used

a When using a Rhythm Sound Module

● Connections



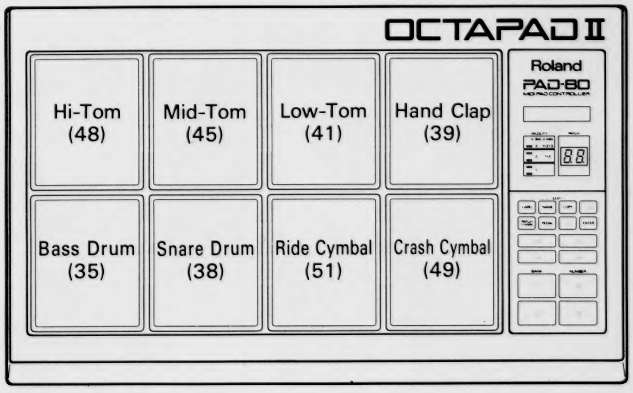
● MIDI Channel

In this example, only one rhythm sound module is used, therefore, the MIDI channels of all the eight pads of the PAD−80 should be set to the receive MIDI channel number of the rhythm sound module. If the receive channel of the rhythm module is 10, set the MIDI channels of all the eight pads to 10.

● Note Number

On a rhythm sound module, a different note number is assigned to each rhythm voice. Assign the note number of the desired rhythm voice to each pad.

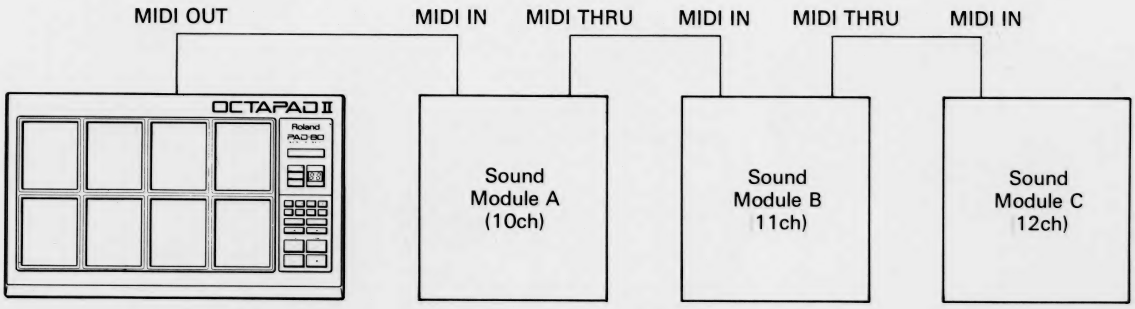
Rhythm Voice	Note Number
Bass Drum	35
Snare Drum	38
Hi−Tom	48
Low−Tom	41
Mid−Tom	45
Hand Clap	39
Ride Cymbal	51
Crash Cymbal	49



b When using a Synthesizer or Sampler

1) When using more than one MIDI sound module

● Connections



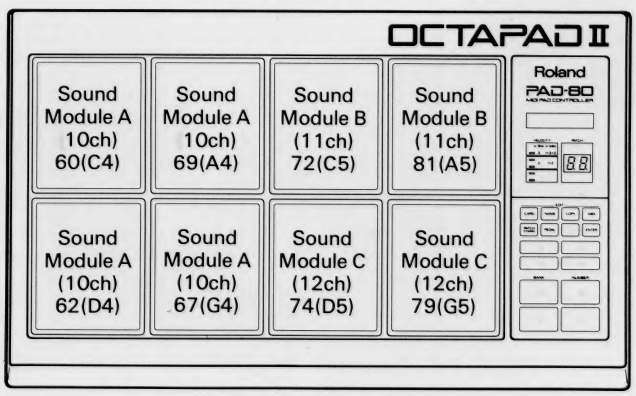
***Do not connect more than three MIDI devices via the MIDI THRU connectors. To connect more than three devices, use the optional MIDI Output Selector MPU 105.**

● MIDI Channels

Set the MIDI receive channel of each sound device to a different number Otherwise more than one sound will be played simultaneously by hitting a single pad. Set the MIDI channel of each pad to the same number as the receive channel of the desired sound source.

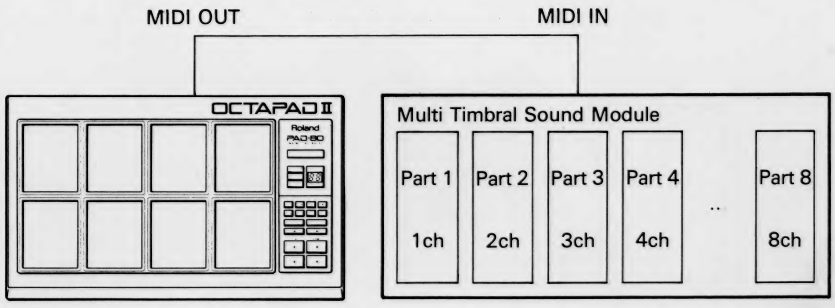
● Note Numbers

On a MIDI sound module such as a synthesizer note numbers are assigned to pitches. That is, the synthesizer will be played in the pitch corresponding to the note number Set the note number in each pad to the desired pitch.


OCTAPAD II
Roland
PAD-80
Sound Module A 10ch) 60(C4)
Sound Module A 10ch) 69(A4)
Sound Module B (11ch) 72(C5)
Sound Module B (11ch) 81(A5)
Sound Module A (10ch) 62(D4)
Sound Module A (10ch) 67(G4)
Sound Module C (12ch) 74(D5)
Sound Module C (12ch) 79(G5)

2) When using a MIDI Sound Module featuring the Multi Timbral Function

● Connections

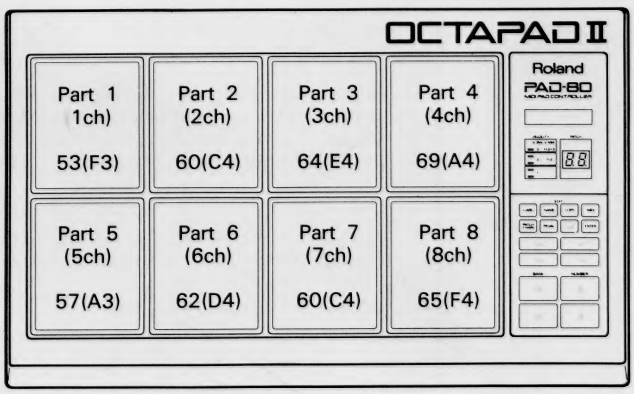


● MIDI Channels

A MIDI sound module featuring the Multi Timbral function can play more than one sound at the same time. The D-110, D-10 and D-20 have eight synthesizer parts (Parts 1 to 8), allowing you to set a different MIDI channel to each Part. Therefore, set the MIDI channel of each pad to the same number as the MIDI channel assigned to each Part of the sound module.

● Note Numbers

On a MIDI sound module such as a synthesizer note numbers are assigned to pitches. That is, the synthesizer will be played in the pitch corresponding to the note number. Set the note number in each pad to the desired pitch.



3 Patch Selection

1. Structure of a Patch

A Patch consists of the parameter settings of the eight pads. Up to 64 Patches can be stored into the internal memory A Patch is represented by a Bank (1 to 8) and Number (1 to 8)

***Using the optional memory card (M 128D, M−256E) another 64 Patches can be stored.**

Bank / Number	1	2	3	4	5	6	7	8
1	11	21	31	41	51	61	71	81
2	12	22	32	42	52	62	72	82
3	13	23	33	43	53	63	73	83
4	14	24	34	44	54	64	74	84
5	15	25	35	45	55	65	75	85
6	16	26	36	46	56	66	76	86
7	17	27	37	47	57	67	77	87
8	18	28	38	48	58	68	78	88

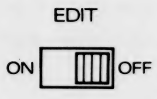
The MIDI channel and Note numbers you have set are written in the Patch number (location) which was selected before setting the Edit Switch to ON Take the procedure as explained in "Basic Operation" for each Patch so that it will be appropriate for the sound module you use Then all you should do during live performance for changing the setting of each pad, is call a Patch you like.

1-8
2-16
3-24
4-32
5-40
6-48
7-56
8-64
9-72
10-80
11-88
12-96
13-104
14-112
15-120
16-128

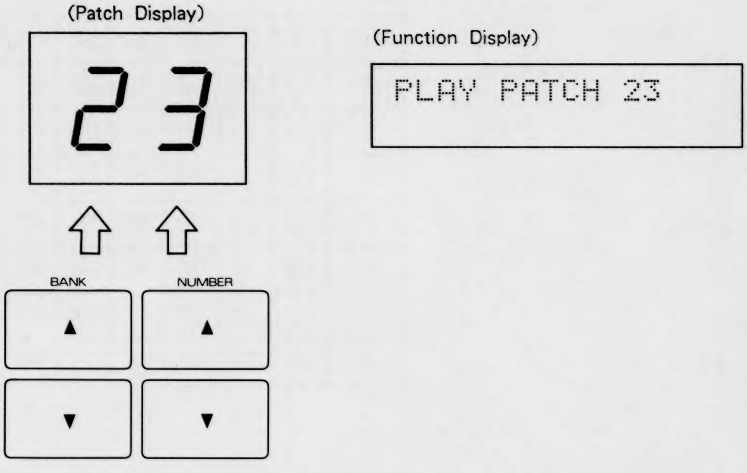
8×64=512

2. Changing Patches

Turn the PAD-80 to the Play mode by setting the Edit Switch on the rear of the unit to OFF



To select a Patch, use the Bank and Number Keys. The Patch Display shows the Patch number currently selected, while the Function Display shows the Patch Name.



***If you wish to change the Patch name, see "3. Naming a Patch" on page 45**

4 Pedal Functions

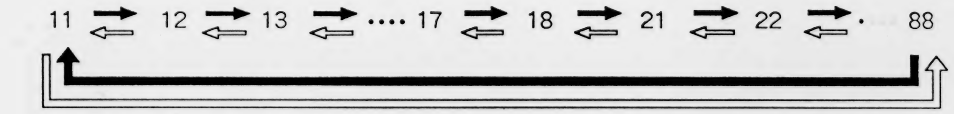
1. Patch Selection with a Pedal

Connect footswitches to the Patch Shift sockets, and you can select a Patch by pressing the pedals.

(DP-2)

Pressing the footswitch will change the Patch numbers as shown below. Holding the pedal down will cause a continuous change of the numbers.

When connected to UP ➡
When connected to DOWN ⇨



2. Hold Function

Connect a footswitch to the Hold Pedal socket, and you can create a hold effect by pressing the pedal.

Press the pedal while you hear sound, and the sound is sustained as long as the pedal is being pressed. This effect can be obtained if you play the pad after pressing the footswitch.

(DP-2)

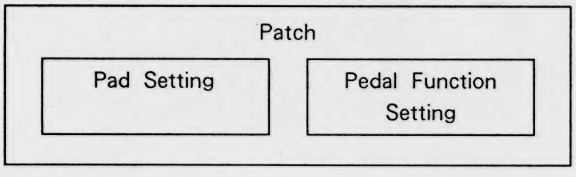
***If you play another pad while the Hold effect is on and the MIDI channel of the pad you played later is the same number the pad played later will also take on the Hold effect.**

***The Hold effect may not be obtained when you use a certain type of MIDI sound module, and is usually inappropriate for drum sounds.**

Advanced Course

1 Patch Editing

A Patch is made up of the parameters for all the pads and pedal functions. The PAD 80 allows you to edit those parameters.

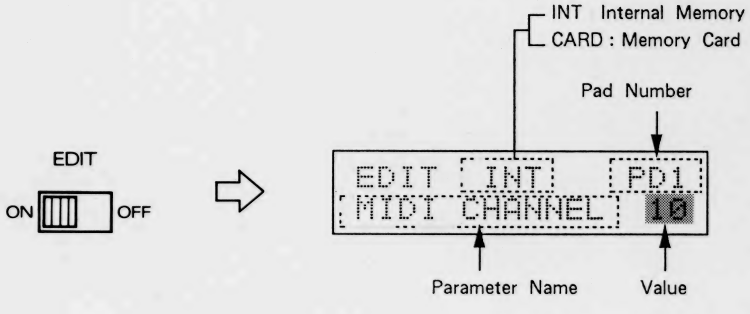


1. Setting each Pad

a Editing Procedure

Step 1 **Select a Patch to be edited in the Play mode.**

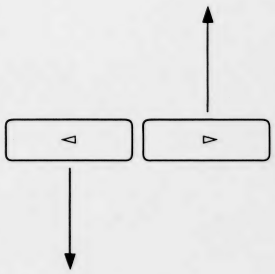
Step 2 **Turn the Edit Switch on the rear of the unit ON.**



Step 3 **Hit the pad you wish to edit.**

The number of the pad you hit is shown in the upper right corner of the display

Step 4 Using the Parameter Keys, call the parameter you wish to edit.



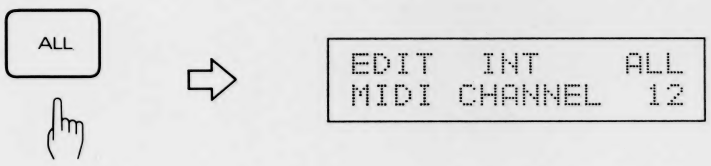
- Pan
- Layer Select
- Layer
- Program Change
- Sensitivity
- Velocity Curve
- Gate Time
- Note Number
- MIDI Channel

*When both Layer Notes are set to OFF, the Layer select display cannot be called.

Step 5 Using the Value Keys, change the value of the parameter

- Each time the ▶ (◀) key is pressed, the value increases (decreases)
- Holding the ▶ (◀) down will quicken the change of values.
- Pressing the ▶ (◀) key while holding the ◀ (▶) key down will quicken the change even more.

Step 6 If you wish to set all the pads to the same value, push the All Key "All" is shown in the upper right corner of the display and the value shown in the display will be set for all the pads.



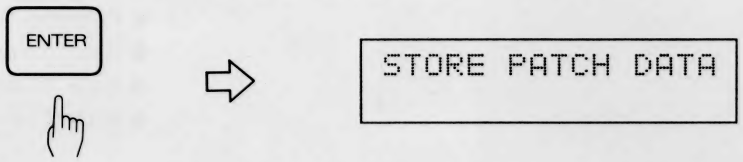
*When external pads are connected, these are also set to the same value.

Step 7 **To continue to edit other parameters, repeat Steps 4 to 6.**

Step 8 **To continue to edit other pads, repeat Steps 3 to 7**

Step 9 **Push the Enter Key**

The edited version is written in the Patch currently selected.

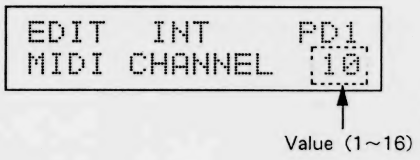


Step 10 **Set the Edit Switch back to the OFF position.**

***If you switch to the Play mode, or switch off before pushing the Enter Key the edited data will be erased.**

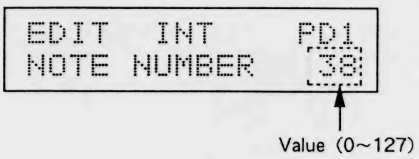
b. Parameters

1) Selecting a Sound Module (MIDI Channel 1 16)



Set the MIDI channel of each pad to the same number as the sound module you wish to play

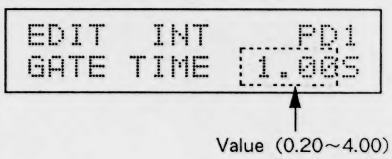
2) Selecting a Sound (Note Number 0-127)



Specify the Note number to be played.

***To assign a Note name instead of a note number use the Number Keys.**

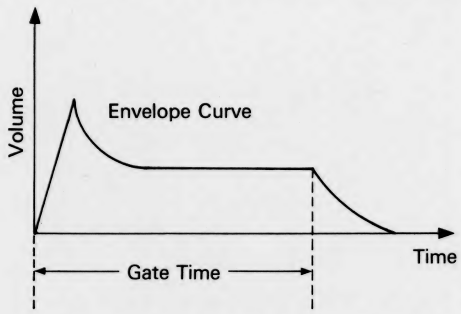
3) Sound length (Gate Time 0.20 4.00 seconds)



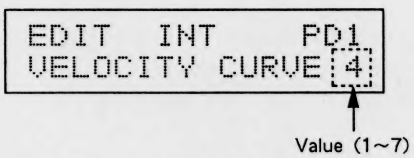
A Gate Time represents the time when a keyboard is held down from Note ON to Note Off This determines how long the sound should last from the moment the pad is hit.

***When you use a sound with a mild attack, set the gate time fairly long, or the sound may be inhearable.**

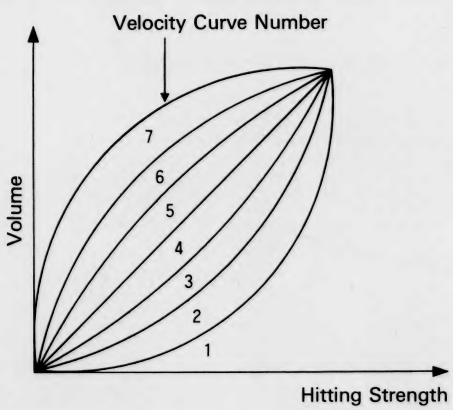
***Depending on the sound module or the sound you use, the actual sound length will vary**



4) Dynamics (Velocity Curve 1 - 7)

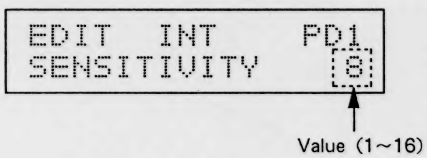


This is a curve that determines how the volume alters by the strength of each hit. As you hit a pad harder the sound is louder



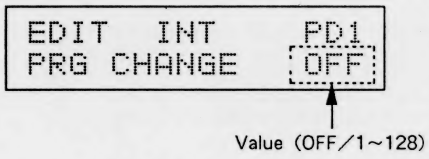
***Depending on the sound module or the sound you use, the actual volume change will vary**

5) Sensitivity (1 - 16)



This sets the sensitivity of each pad. Higher values increase the sensitivity making the sound louder even when hit softly

6) Sound Selection (Program Change OFF 1 – 128)



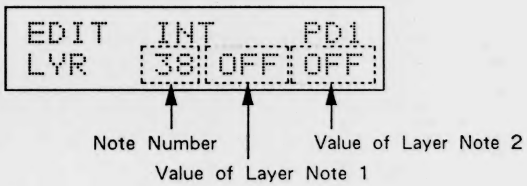
If you wish to select a Timbre on an external MIDI device with the Program Change messages, specify the Program Change number If not, set it to "OFF"

***The Program Change messages are sent the moment you select a Patch, on the MIDI channel set it for each pad.**

7) Playing more than one sound simultaneously (Layer)

The Layer function transmits more than one Note message from a single pad, creating special effects Apart from the Note number already set, you can have two more note numbers (Layer Notes 1 and 2) and the final result is also affected by "Layer Select",as shown below

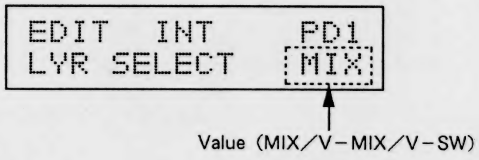
【Layer OFF 0 127)】



Set the note number for each Layer Note. If you do not wish to use the Layer function, set it to "OFF"

***To assign a note name instead of a note number use the Number Keys.**

【Layer Select MIX／V MIX／V－SW】



You can select one of three modes, to determine how the above three Note messages should be transmitted.

● MIX

The three Note messages are transmitted simultaneously when the pad is played. With a synthesizer you may play a chord by using these three notes, from a single pad.

● V－MIX (Velocity Mix)

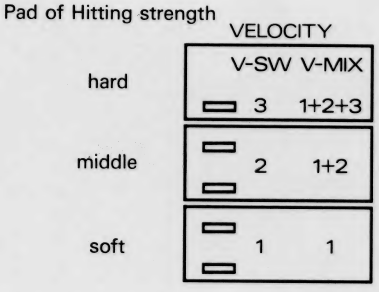
Three Note messages can be transmitted separately or simultaneously depending on how hard you hit a pad Playing the pad softly transmits only the initial Note number playing the pad stronger transmits Layer Note 1 also and even stronger playing transmits Layer Note 2 along with the other two notes.

● V SW (Velocity Switch)

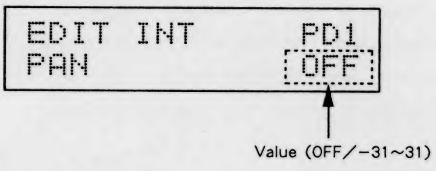
One of the three Note messages is transmitted depending how hard you play the pad. Playing the pad softly will transmit the initial Note number playing the pad stronger will transmit Layer Note 1 only and increasing the strength even more will transmit Layer Note 2.

When using a sampler you may sample a different timbre for each note number in order to more accurately represent the dynamic response of the instrument.

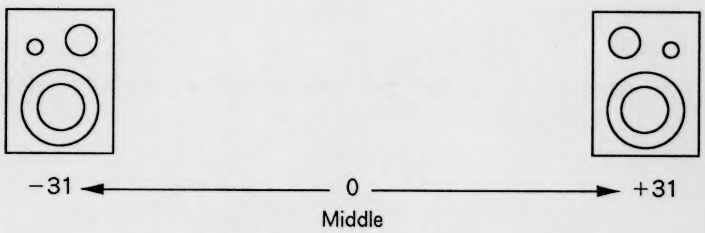
When the Velocity Mix or Velocity Switch functionis in use, you can check how it is actually working with the Level Indicators.



8) Pan (OFF −31 − +31)



Pan is the positioning of the sound in the stereo field. When you use a sound module that can receive MIDI pan messages, this parameter is very effective. If you do not want to transmit the pan messages, set it to "OFF" The table below shows the possible values and the actual pan result.



***Pan messages are transmitted on the MIDI channel set for each pad, the moment the pad is hit.**

2. Setting the Pedal Functions

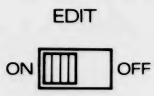
Using a foot volume (optional EV-5 or EV-10) the following functions can control the external sound source. The Modulation and pitch bender functions can be obtained by hitting the pads even without using the foot volume.

- **Modulation**
- **Pitch Bender**
- **Aftertouch**

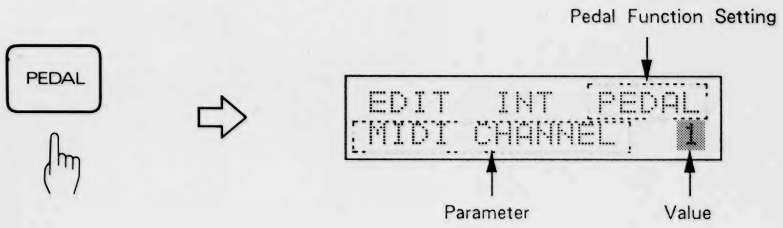
***The depth of the above functions may vary when you use a sound module that cannot receive these messages or use a sound of a particular type. Please refer the owner's manual of the sound module.**

a Editing Procedure

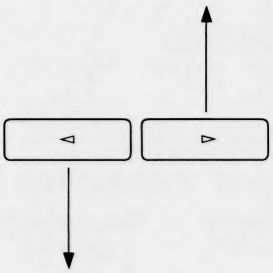
Step 1 **Set the Edit Switch on the rear of the PAD 80 to the ON position.**



Step 2 **Press the Pedal Key**



Step 3 **Using the Parameter Keys, call the parameter you wish to edit.**



- **Aftertouch Threshold**
- **Aftertouch** *

- **Dynamic Bend**
- **Bend Decay**
- **Bend Depth**
- **Bend Select** *

- **Modulation Depth**
- **Modulation Delay** *

- **MIDI Channel**

When a parameter with a * mark is set to "OFF" you cannot call any further parameter display related to that effect.

Step 4 **Change the values using the Value Keys.**

Step 5 **To continue to change other parameters, repeat Steps 3 and 4.**

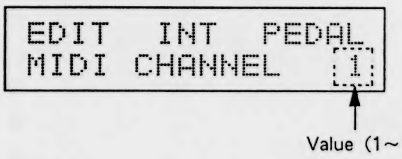
Step 6 **Push the Enter Key**

The edited version will be written into the Patch number currently selected.

Step 7 **Set the Edit Switch back to the OFF position.**

b Parameters

1) Selecting a sound Module to be controlled (MIDI Channel 1-16)

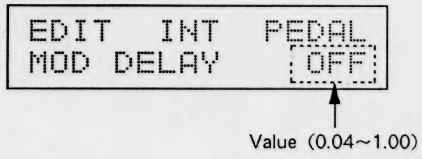


Set the MIDI channel of the PAD-80 to the same number as the receive MIDI channel of the sound module you wish to control.

2) Modulation

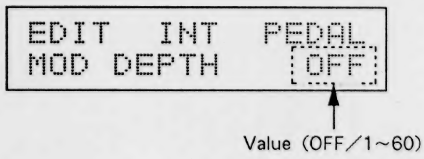
The connected sound module will be sent modulation messages. There are two parameters for the modulation effect.

[Modulation Delay OFF 0.04-1.00 seconds]



This sets the time needed for the modulation effect to be turned on from the moment the pad is hit. Increasing the value makes the time longer If you do not want the modulation effect, set it to "OFF"

[Modulation Depth OFF 1-60]

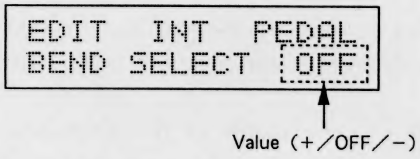


This determines the depth of the modulation Increasing the value deepens the effect To control the modulation depth with a foot volume, set this parameter to "OFF"

3) Pitch Bender

The Pitch bender parameter bends the pitch from one extreme to the other, equivallent to a bender lever on a synthesizer. There are four parameters for the pitch bender effect.

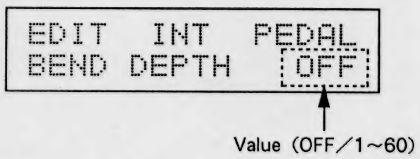
[Bend Select + OFF −]



This determines the direction of the pitch changes.

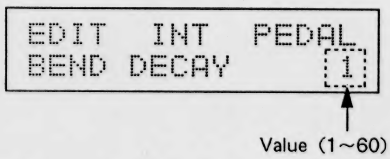
+ The pitch increases, then returns to the original.
OFF The pitch bender does not function.
− The pitch decreases, then returns to the original.

[Bend Depth OFF/1 60]



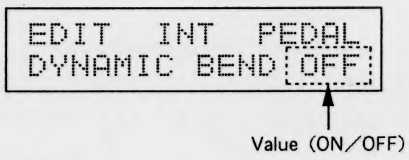
This sets the depth of the pitch bender effect. Increasing the value widens the pitch change. To control the pitch bender effect with a foot volume, set this to the "OFF" position.

[Bend Decay 1 60]



This sets the time needed for the sound to return to the original pitch. Higher values make the time longer.

【Dynamic Bend ON,OFF】

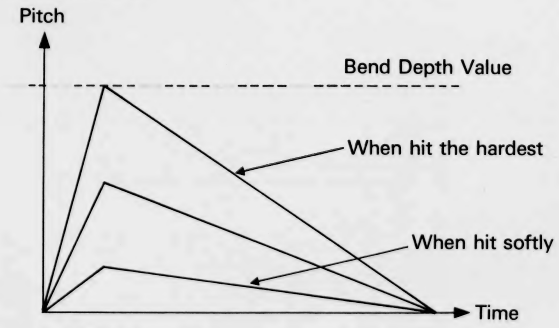


This selects whether or not to change the depth of the bend effect according to the strength with which the pad is played.

ON **The depth of the pitch bender changes depending how hard you play the pads, within the range of the set bend depth value.**

OFF **The pitch changes up to the set bend depth value regardless of the strength.**

(Dynamic Bend)

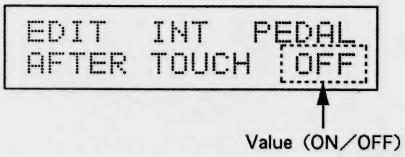


4) Aftertouch

After touch is basically the MIDI Keyboard function that causes any change when the key is pushed harder after playing it in a nomal manner The change caused by the aftertouch includes volume, tone and modulation.

The PAD-80 can select whether to turn aftertouch on or not, by changing the strength of playing, and control the depth of the aftertouch using a foot volume.

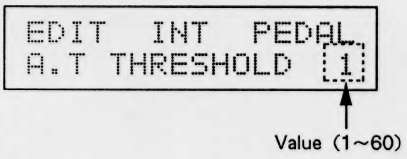
【Aftertouch ON, OFF】



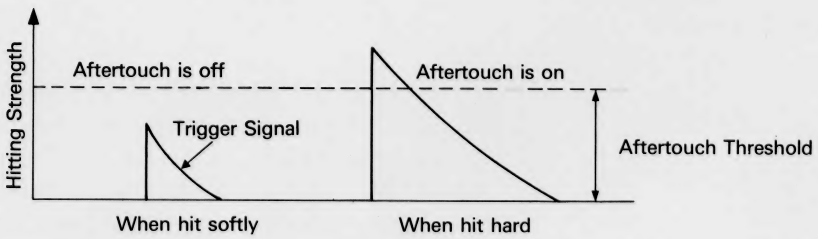
This selects whether or not to turn on the aftertouch effect.

ON The Aftertouch effect is obtained.
OFF The Aftertouch effect is not obtained.

【Aftertouch Threshold 1 60】



This sets the threshold level, which is the minimum pad strength for which the aftertouch effect can be obtained. In other words, when it is set higher,a stronger hit is required to produce the aftertouch effect.



c. How to use the pedal

The following explains how to control each effect using a foot volume (EV 5 or EV 10)

Step 1 **Connect a foot volume to the Pedal Control socket on the rear of the PAD 80.**

(EV-5 EV 10)

Step 2 **Set the Mimimum Volume of the foot volume to zero.**

Step 3 **Control each effect as shown below by changing how you press the pedal.**

To control the effect using a foot volume it is necessary to set certain parameters beforehand.

【Modulation】

Pressing the pedal will deepen the effect When the pedal is not pressed the modulation effect is off The depth of the effect is determined by the position of the pedal when the pad is hit, therefore, moving the positions of the pedal while the sound is playing does not affect the depth of the modulation.

【Pitch Bender】

Pressing the pedal will change the pitch more drastically When the pedal is not pressed, the pitch bender effect is off The depth of the effect is determined by the position of the pedal when the pad is hit. In other words, moving the positions of the pedal while the sound is playing does not affect the depth of the pitch bender

【Aftertouch】

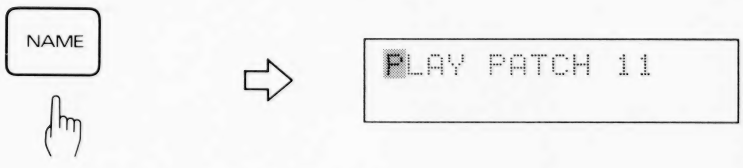
The aftertouch effect is obtained when the pad is played harder than a certain level. The depth of the effect is determined by the pedal.

3. Naming a Patch

Each Patch can be named using 16 letters. The Patch name you choose is shown in the display during the Play mode, so that it will help you remember what the Patch is like.

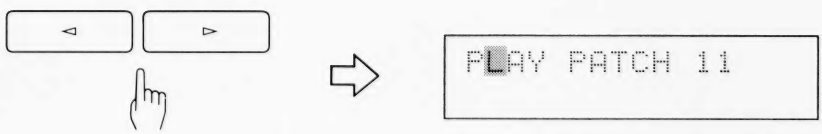
Step 1 **Press the Name Key in the Edit mode.**

The Patch name is shown in the Function Display with the first letter flashing.

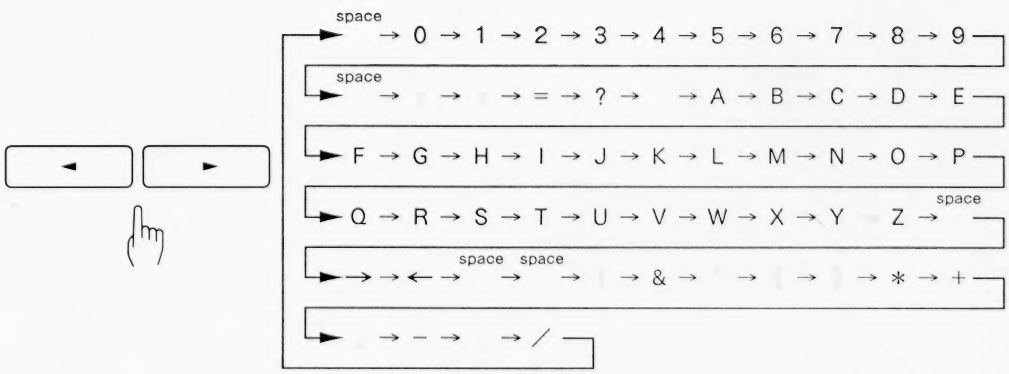


Press the Name Key again to return to the Edit mode.

Step 2 **Using the Parameter Keys, select which letter you wish to change.**



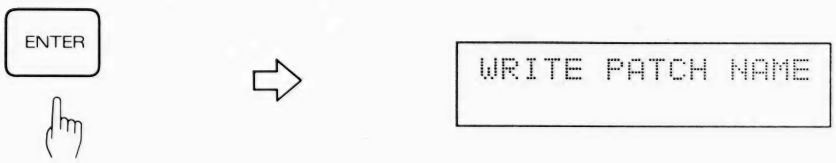
Step 3 **Using the value keys, change the letter**



Step 4 **Repeat Steps 2 and 3 as many times as necessary**

Step 5 **Press the Enter Key**

The Patch name is then assigned to the Patch number currently selected.



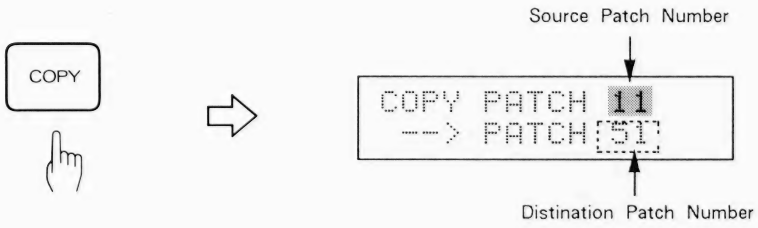
Step 6 **Return the Edit Switch to the OFF position.**

4. Copying a Patch

Patch data can be copied to a different Patch number (location) When you want to make many similar Patches, it will be quicker to copy a Patch as many times as necessary then edit those Patches.

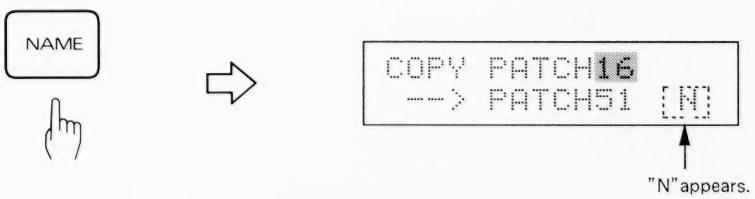
Step 1 **In the Play mode using the Bank and Number Keys specify the destination Patch number (=the position of the new patch)**

Step 2 **Switch to the Edit mode, then press the Copy Key**



Step 3 **Select the Patch to be copied (=source Patch number) with the Value keys.**

Step 4 **If you wish to copy the Patch name together with the Patch data, push the Name Key**

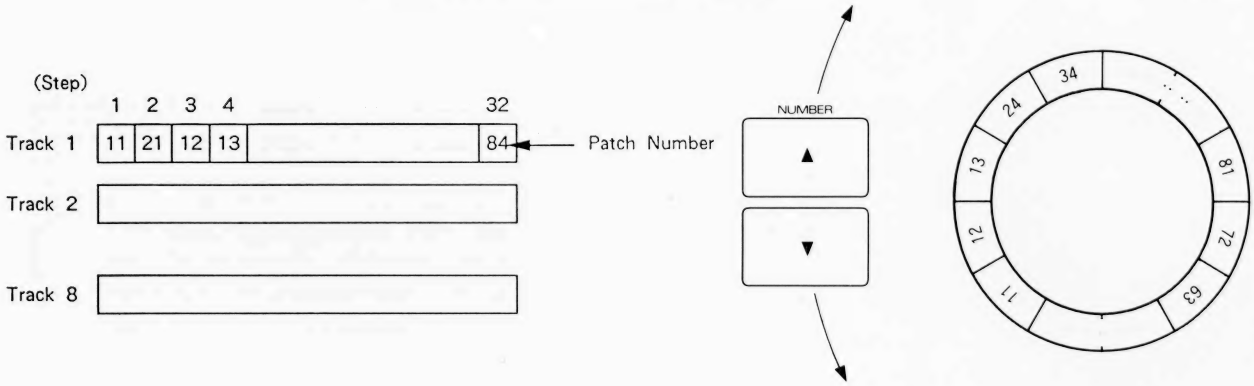


The display shows an "N" Each time the Name Key is pressed, the "N" will go on or off The Patch name can be copied only when the "N" is lit.

***To cancel the copy mode, push any Key other the Name Key Enter Key and the Name Key**

2 Patch Chain

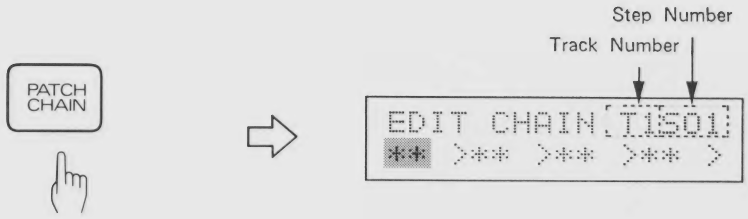
The Patch Chain function allows you to arrange the Patches in any sequence you like, then play them in the set order The location where the Patches are collected is called a TRACK. Up to eight tracks can be programmed with a maximum of 32 Patch numbers for each track.



1. Setting the Patch Chain

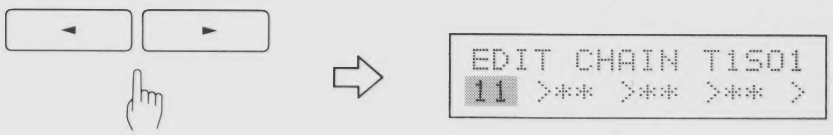
Step 1 **Switch the unit to the Edit mode and push the Patch Chain Key**

It is now ready to set the Patch Chain.

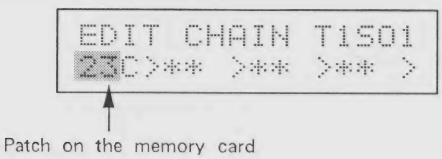


Step 2 **Using the Bank Key specify the track to be used.**

Step 3 **Using the Value Keys, assign the first Patch number**

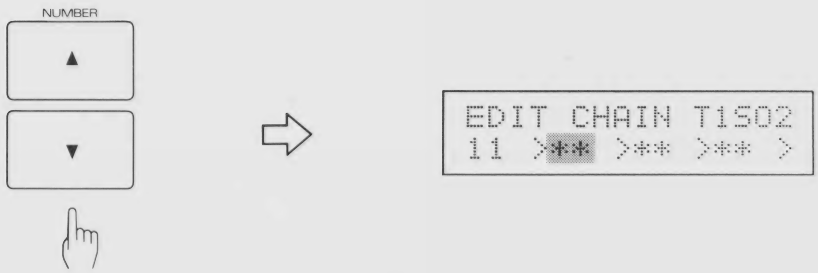


***A "C" shown at the right of a Patch number means that the Patch you have assigned is on a memory card.**



***Refer to page 54 for a detailed explanation of memory cards.**

Step 4 Make the next number flash using the Number Key



Step 5 Repeat Steps 3 and 4 as many times as necessary to make a whole track.

*If there is any step where no Patch number is set, the remaining Patch numbers will all be ignored.

Step 6 To continue to program other tracks, repeat Steps 2 to 5.

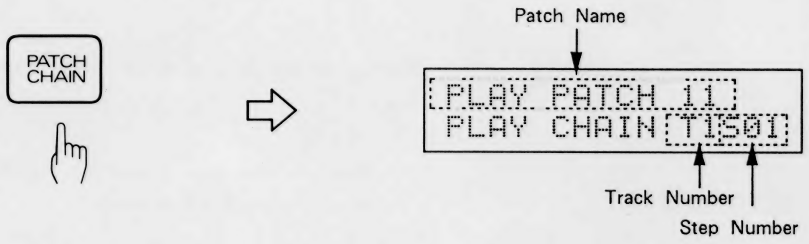
Step 7 Return the unit to the Play mode.

2. Patch Selection in the Patch Chain

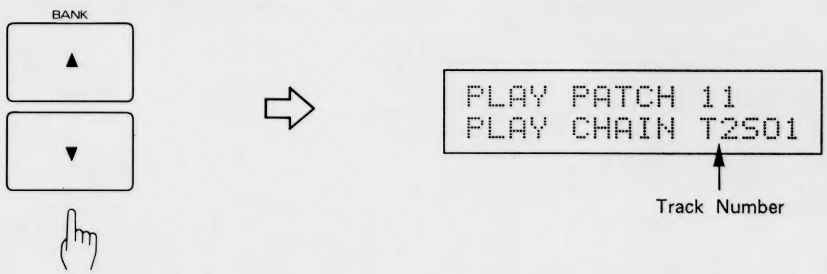
This will allow you to select any Patch Chain track you have programmed, and play the Patches in the order of step numbers you have set.

Step 1 **Press the Patch Chain Key in the Play mode.**

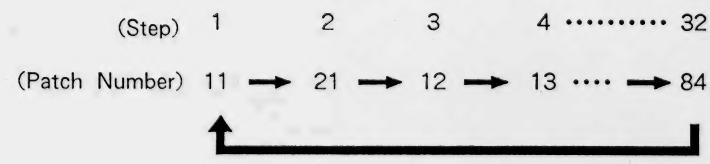
It is now set to the Patch Chain playing mode.



Step 2 **Using the Bank Keys, select a Patch Chain track you wish to play**



Step 3 **Press the Number Key to play the Patches in the set sequence.**



*The footswitches connected to the Patch Shift sockets will work just like the Number Key.

*When a Patch in a memory card has been set, but the memory card is not connected to the PAD—80, the same Patch number in the internal memory will replace it.

Step 4 Push the Chain Key to return to the normal Play mode.

3 Memory Card

The optional memory card (M 128D, M−256E) can store up to 64 different Patches During live performance you can switch to any Patch in the memory card very easily

Internal Memory
64 Patches Patch Chain 8 Tracks

Memory Card
64 Patches

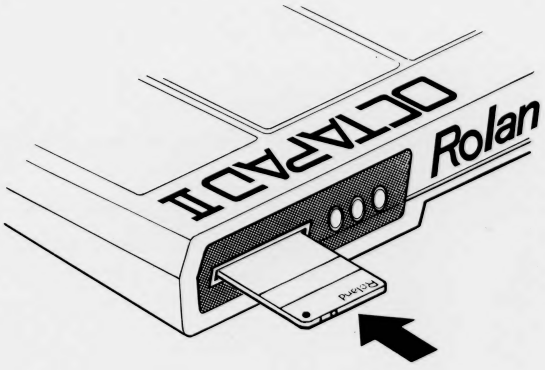
【Notes on Memory Cards】

- **Use only the specified memory card, M−128D, M 256E.**
- **Both M 128D and M 256E can store up to 64 different Patches per one sheet.**
- **Read the instructions of the memory card carefully**
- **A memory card features a protect switch to prevent accidental erasure of data. Set it to the ON position, except when saving data onto the card.**
- **If the PAD 80 is turned off with a memory card connected, there will be considerable drain on the battery Be sure to disconnect the memory card before switching off the PAD 80.**
- **If an error message is shown in the display resolve it by following the "Error Message Tabel" on page 75.**

1. Using a brand new Memory Card

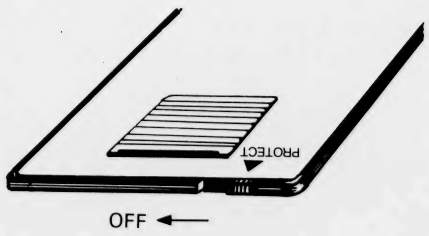
When you use a brand new memory card, follow the procedure to save the entire patch data in the internal memory onto the memory card.

Step 1 **Insert the memory card in the card slot on the PAD−80 securely. (until you hear a click)**



Step 2 **Switch the unit to the Edit mode.**

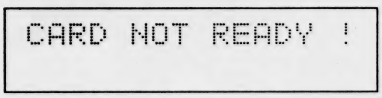
Step 3 **Set the protect switch on the memory card to the OFF position.**



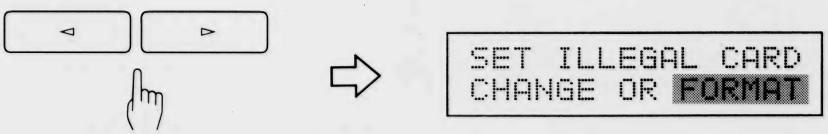
Step 4 **Press the Card Key.**

***To cancel this mode, push any key other than the Parameter Keys.**

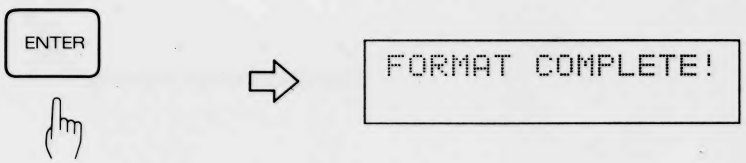
***If the memory card is not correctly connected, the display shows the following error message. Remove the card and re-insert it properly.**



Step 5 **Using the Parameter Keys, make the word "FORMAT" flash.**



Step 6 **Press the Enter Key.**

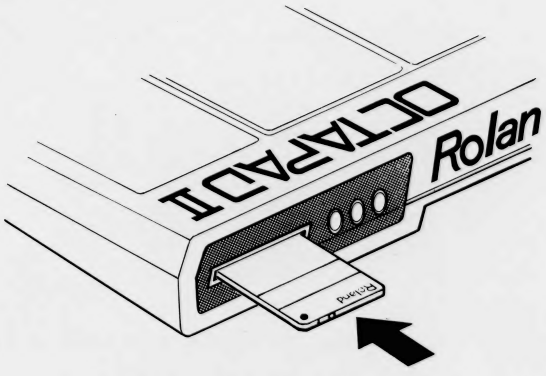


Step 7 **Set the protect switch on the memory card back to the ON position.**

Step 8 **Return the PAD-80 to the Play mode.**

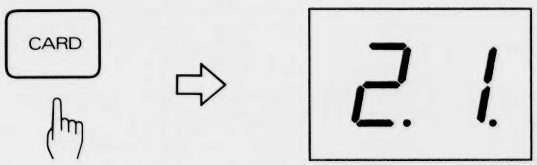
2. Patch Selection

Step 1 **Insert the memory card into the card slot.**



Step 2 **Press the Card Key in the Play mode.**

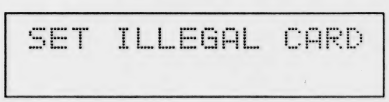
A dot appears to the right of the Patch number, showing that the current Patch is the one from the memory card.



***Pressing the card Key will switch between the internal and memory card modes.**

***It is also possible to switch to a Patch on the memory card by using the Bank Keys.**

***If the memory card is not appropriate for the PAD−80, the display shows the following error message. Change the memory card.**



【Editing a Patch】

To edit a Patch on a memory card, call the Patch from the memory card, then switch the PAD−80 to the Edit mode.

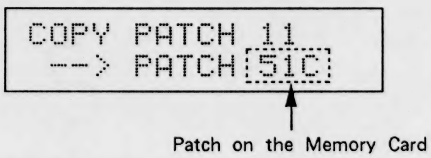
The display responds as shown below.

【Copying a Patch】

When a memory card is connected, a Patch can be copied between the internal memory and the memory card.

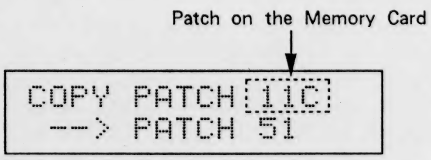
● Copying a Patch onto the memory card

Before starting the copying procedure, select to a Patch on the memory card by pressing the Card Key (or Bank Key).



● Copying a Patch on the memory card

Follow the procedure up to Step 3 in "Copying a Patch" on page ＊＊, then change the Patch numbers using the Value Keys until "C" is shown at the right of a Patch number.



3. Saving Data (onto a Memory Card)

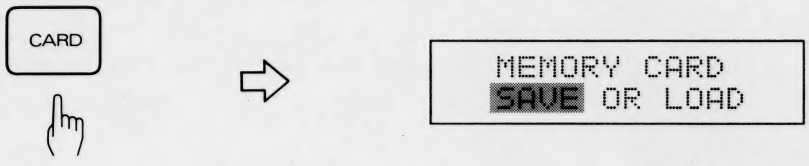
The entire Patch data in the internal memory can be copied onto a memory card. This is called saving.

Step 1 **Insert the memory card into the card slot securely (until you hear a click).**

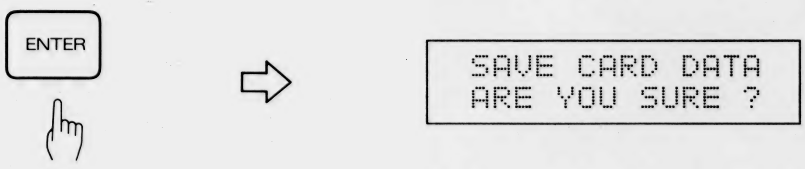
Step 2 **Switch the unit to the Edit mode.**

Step 3 **Set the protect switch on the memory card to the OFF position.**

Step 4 **Press the Card Key.**



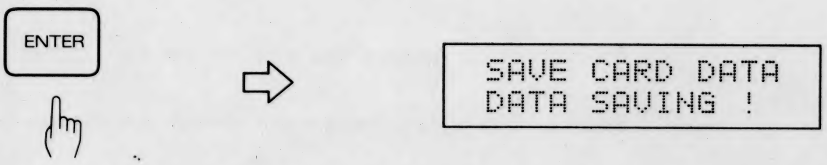
Step 5 **Press the Enter Key.**



***To cancel this procedure, push any key other than the Enter Key.**

Step 6 **Press the Enter Key again.**

Now, the entire Patch data is saved onto the memory card.



Step 7 **Set the protect switch on the memory card back to the ON position.**

Step 8 **Return the unit to the Play mode.**

4. Loading Data (into the Internal Memory)

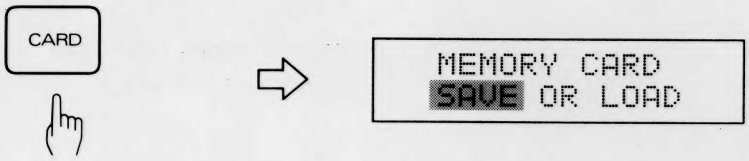
The entire Patch data stored on a memory card can be copied back to the internal memory. This is called loading.

Step 1 **Set the protect switch on the memory card to the ON position.**

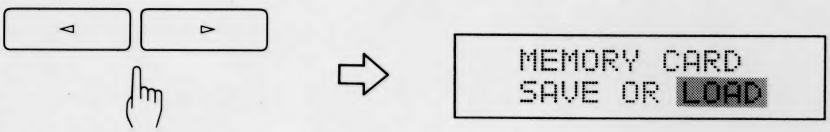
Step 2 **Insert the memory card into the card slot securely (until you hear a click).**

Step 3 **Switch the unit to the Edit mode.**

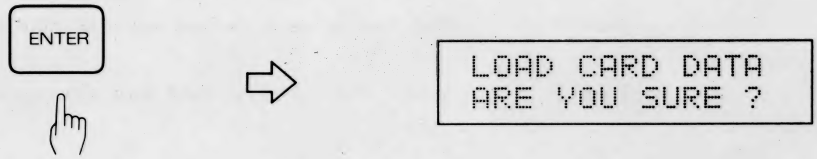
Step 4 **Press the Card Key.**



Step 5 **Using the Parameter Keys, make the word "LOAD" flash.**



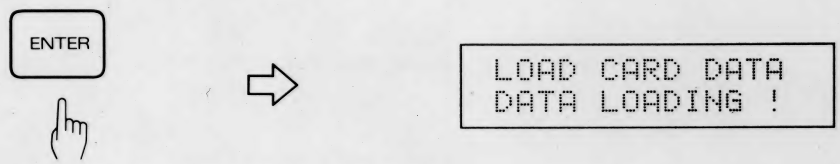
Step 6 **Press the Enter Key.**



***To cancel this procedure, press any key other than the Enter Key.**

Step 6 **Press the Enter Key again.**

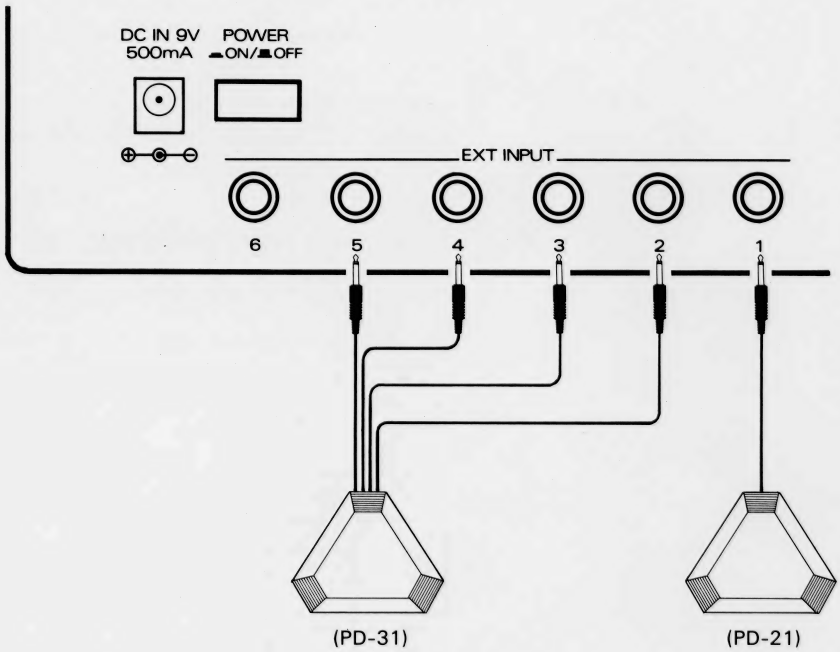
Now, the entire Patch data on the memory card is loaded back into the internal memory of the PAD−80.



4 ADDING EXTERNAL PADS

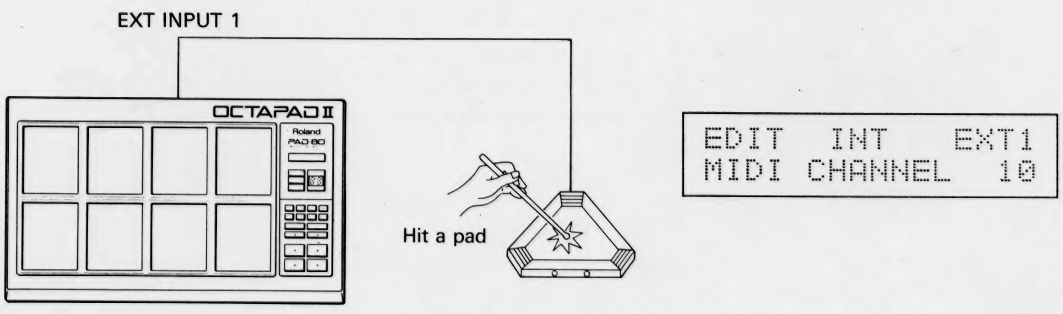
In addition to the eight pads, six inputs are provided for expansion, using other external pad controllers (optional pads PD−21, PD−31, etc.). These external pads work exactly the same way as the eight pads on the PAD−80.

1. Connections



2. Pad Settings

To set how an external pad should be played, hit the external pad in the Patch editing mode.



The word "EXT" appears in the display showing that it is now in the editing mode for the external pad. Edit the parameters in the same way as you would the built−in pads.

5 MIDI

MIDI Program Change messages sent from an external device can change Patches on the PAD−80. Also, the Patch or Patch Chain setting written in the internal memory can be transferred to the external MIDI device via Exclusive messages.

1. Patch Selection

The MIDI Program Change messages sent from an external device can change Patches on the PAD−80. Also, the PAD−80 can transmit the MIDI Program Change messages of the Patches. The Program Change messages of the Patches are transmitted or received on the MIDI basic channel, and whether they are received or transmitted is selected in the System Chain function.

***When using more than one PAD−80 to change all the Patches simultaneously, set the Soft Thru ON. (See page 66.)**

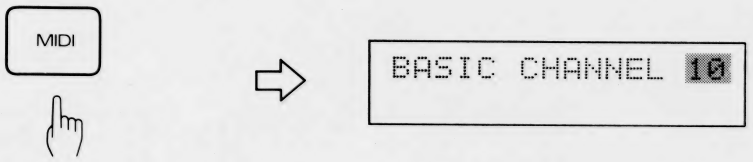
The Program Change numbers correspond to the Patch numbers as below.

	Number / Bank	1	2	3	4	5	6	7	8
Internal Patches	1	1	2	3	4	5	6	7	8
	2	9	10	11	12	13	14	15	16
	3	17	18	19	20	21	22	23	24
	4	25	26	27	28	29	30	31	32
	5	33	34	35	36	37	38	39	40
	6	41	42	43	44	45	46	47	48
	7	49	50	51	52	53	54	55	56
	8	57	58	59	60	61	62	63	64
Memory Card Patches	1	65	66	67	68	69	70	71	72
	2	73	74	75	76	77	78	79	80
	3	81	82	83	84	85	86	87	88
	4	89	90	91	92	93	94	95	96
	5	97	98	99	100	101	102	103	104
	6	105	106	107	108	109	110	111	112
	7	113	114	115	116	117	118	119	120
	8	121	122	123	124	125	126	127	128

If the basic channel is set to the same number as the MIDI channel of a pad and you change patches, the program change number as the Patch has priority.

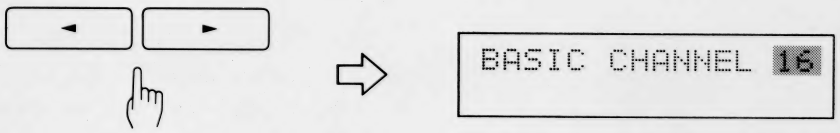
【Setting the Basic Channel and System Chain】

Step 1 Switch the unit to the Edit mode, then press the MIDI Key.

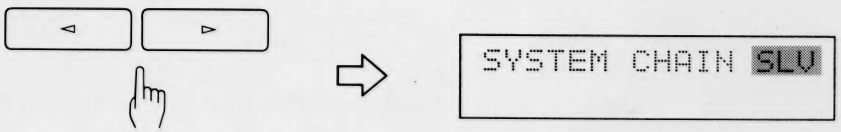


Step 2 Using the Value Keys, set the MIDI basic channel.

1 to 16 are valid.

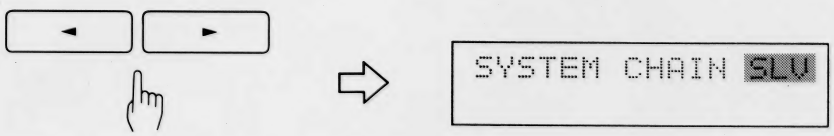


Step 3 Using the Parameter Keys, change to the System Chain display.



Step 4 Using the Value Keys, set the System Chain parameters.

SLV (Slave) ·····Receive the Program Change messages.
MAS (Master) ····Transmit the Program Change messages.

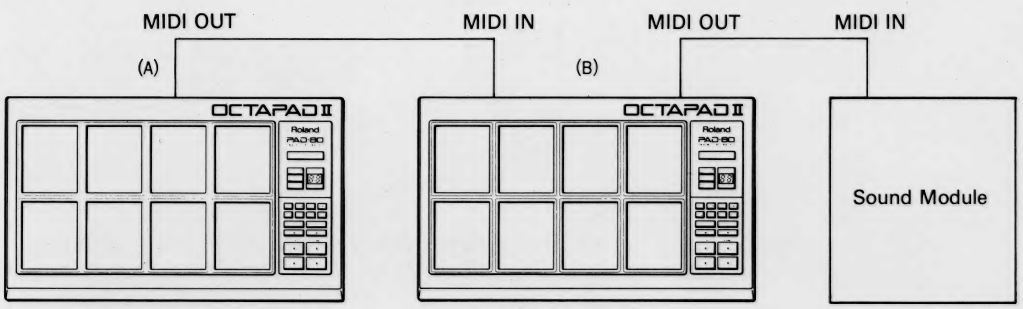


Step 5 Push the MIDI Key to return to the Pad editing mode.

Step 6 Return the unit to the Play mode.

2. When using more than one PAD−80

To play MIDI sound modules using more than one PAD−80, set each MIDI functions and make the connections as shown below.



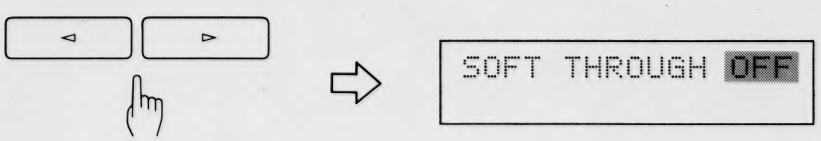
If the Soft Thru is turned on, the MIDI messages fed into the MIDI IN are transmitted throuth MIDI OUT. In this example, the Soft Thru of the PAD−80 (B) is turned on therefore the MIDI messages are sent from the 16 pads through MIDI OUT of the B device , playing the corresponding sound modules. Changing patches on the PAD−80 (A) will change patches on the PAD−80 (B) at the same time.

***Read the previous section for the basic channel or system chain.**

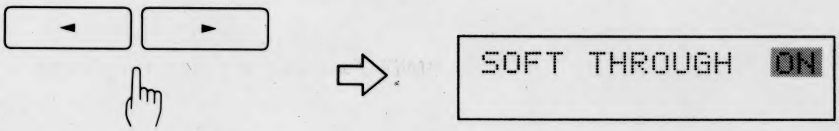
【Setting the Soft Thru】

Step 1 **Press the MIDI Key in the Edit mode.**

Step 2 **Using the Parameter Keys, change to the Soft Thru display.**



Step 3 **Set the Soft Thru ON using the Value Keys.**



Step 4 **Press the MIDI Key to return to the Edit mode.**

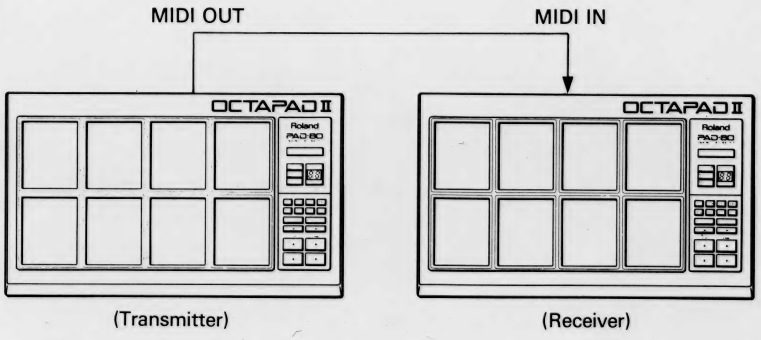
Step 5 **Switch the unit back to the Play mode.**

3. Data Transfer via MIDI

Using the MIDI Exclusive messages, the Patch data or Patch Chain settings stored in the internal memory can be transferred to another PAD−80 or another MIDI device. The following data transfer is between two PAD−80's.

***MIDI functions are not transferred.**

【Connections】

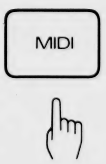


【Procedure】

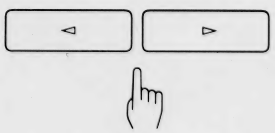
Step 1 Set the basic channels of the transmitter and receiver to the same number. (Page 65)

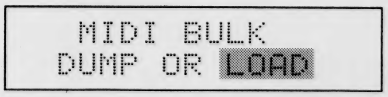
Step 2 Set the Soft Thru function OFF, on both receiver and transmitter.

Step 3 Turn the receiver to the Edit mode, and press the MIDI Key.



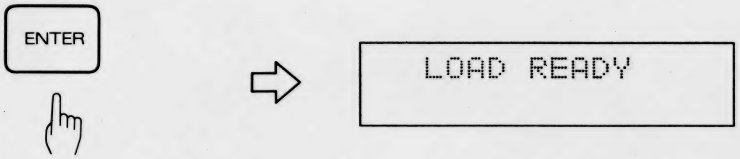
Step 4 Make the word "LOAD" flash using the Parameter Keys on the receiver.



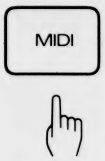


Step 5 **Push the Enter Key on the receiver.**

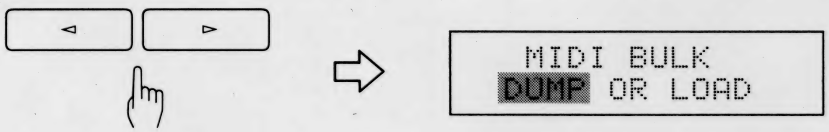
Now, the receiver is ready.



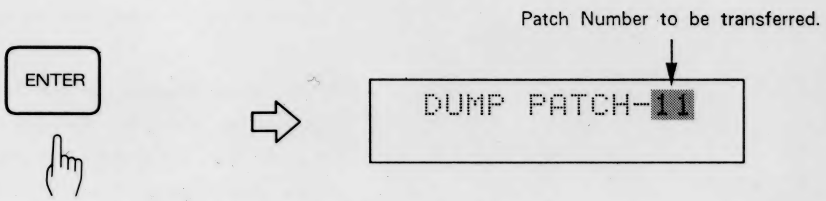
Step 6 **Turn the transmitter to the Edit mode and press the MIDI Key.**



Step 7 **Using the Parameter Keys, make the word "DUMP" flash on the transmitter.**

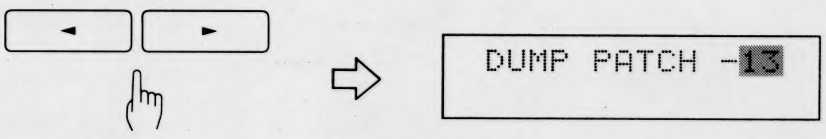


Step 8 **Press the Enter Key on the transmitter.**

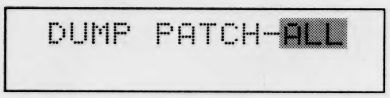


● Transfering Patch Data

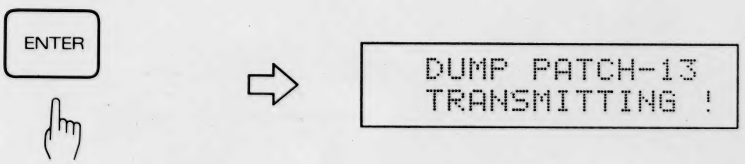
Step 9 **Using the Value Keys, assign the Patch number to be transferred.**



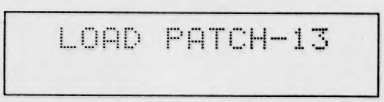
To transfer the entire Patch data, select the "ALL" display by pressing the Value Key.



Step 10 **Press the Enter Key on the transmitter.**



When data transfer is correctly achieved, the receiver's display shows the Patch number transferred.



***If the data transfer is not correct, an error message will be shown in the receiver's display. Resolve it by following the "Error Message Table" on page 75. To resume the transfer, push the Enter Key on the receiver twice, then repeat from Step 9.**

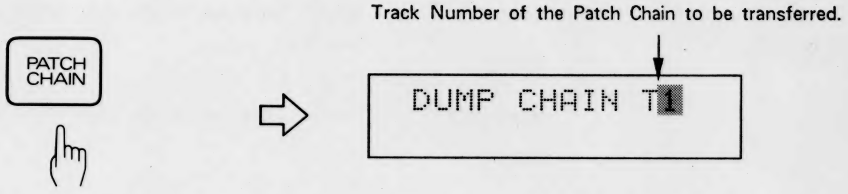
Step 11 To continue to transfer other Patch data, repeat Steps 9 to 10 as many times as necessary.

Step 12 When finished, push the MIDI Keys on both units to return them to the Edit mode.

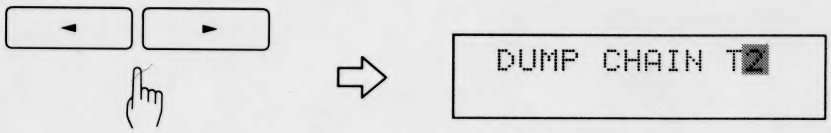
Step 13 Return the units to the Play mode.

●Transfering Patch Chain Setting

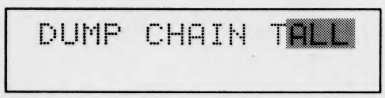
Step 9 **Push the Patch Chain Key on the transmitter.**



Step 10 **Using the Value Keys, assign the Track number to be transferred.**

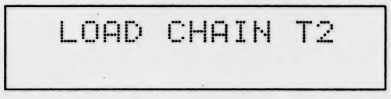


To transfer all the Tracks.



Step 11 **Press the Enter Key on the transmitter.**

When data transfer is correctly achieved, the receiver's display shows the Track number transferred.



***If the data transfer is not correct, an error message will be shown in the receiver's display. Resolve it by following the "Error Message Table" on page 75. To resume the transfer, push the Enter Key on the receiver twice, then repeat from Step 10.**

Step 12 **To continue to transfer other tracks, repeat Steps 10 to 11 as many times as necessary.**

Step 13 **When finished, push the MIDI Keys on both units to return them to Edit mode.**

Step 14 **Return the units to the Play mode.**

Reference

1. Error Message Table

When an error message is shown in the display, resolve it by following this table.

```
ERROR !!
RAM TEST NO GOOD
```

There is something wrong with the PAD−80.

Call your local Roland service center.

```
ERROR !!
DC-VOLT ABNORMAL
```

There is something wrong with the PAD−80.

Call your local Roland service center.

```
CARD NOT READY
```

The memory card is not properly connected.

Insert the memory card securely until it clicks.

```
SET ILLEGAL CARD
```

No Patch data is stored on the memory card.

Change to a memory card with Patch data, or refer to "Using a brand new memory card" on page 55.

```
CARD PROTECTED!
```

The protect switch on the memory card is set to the ON position.

Set the protect switch OFF, then repeat the procedure.

```
LOAD ERROR !!
```

Data transfer via Exclusive messages has not been done correctly.

Repeat the procedure carefully. If the same error message is shown again, call your local Roland service center.

```
CHANNEL ERROR !!
```

The MIDI basic channels of the transmitter and receiver have not been set to the same number during data transfer via Exclusive messages.

Set the basic channels of the transmitter and receiver to the same number.

```
CHECK SUM ERROR!
```

Data transfer via Exclusive messages has not been done correctly.

Repeat the procedure carefully. If the same error message is shown again, call your local Roland service center.

```
PATCH-** ERROR !
```

The data of the current Patch has not been received correctly, during data transfer via the Exclusive messages.

Repeat the procedure carefully. If the same error message is shown again, call your local Roland service center.

```
CHAIN T* ERROR !
```

The data of the current Track has not been received correctly during data transfer via the Exclusive messages.

Repeat the procedure carefully. If the same error message is shown again, call your local Roland service center.

2. Before Calling for Repairs

No sound is heard.

The MIDI channel of the pad is not set to the same number as the receive channel of the MIDI sound module.
☞Match the channels.

The Note number assignment is incorrect.
☞Change the Note numbers.

The Gate time is set too short.
☞Set the Gate time longer.

The sensitivity value is set too low.
☞Set a higher value.

The note number of the Layer note is not set to the same number of the MIDI sound module, and the Layer Select is set to "Velocity Switch".
☞Change the values of the Layer parameters.

The volume is too low.

The sensitivity value is set too low.
☞Set a higher value.

The Velocity curve you have set is not correct.
☞Change the Velocity curve setting.

The Gate time is set too short.
☞Set the Gate time longer.

The sound is strange.

The Layer is ON.
☞Turn the Layer OFF.

Modulation is ON.
☞Set the Modulation Delay to the OFF position.

The Pitch bender is ON.
☞Set the Bend Select to the OFF position.

Aftertouch is ON.
☞Set the Aftertouch to the OFF position.

A note number that has not been assigned is played.

The Layer is ON.
☞Set both Layer to the OFF position.

The PAD−80 is set to the same MIDI channel as the external MIDI sound module.
☞Change the MIDI channels.

Changing the Gate time does not affect the actual sound length.

The MIDI sound module connected to the PAD−80 cannot receive the note off messages.
☞Read the owner's manual of the relevant device.

The foot volume does not function.

The Pedal Function setting is not correct.
☞Change the Pedal Function settings.

The Miminum Volume on the foot volume is not correct.
☞Set the Minimum Volume to zero.

Please note that the depth of the Modulation or Pitch bender effect cannot be changed by pressing the foot volume while the sound is being played.

The MIDI sound module connected to the PAD−80 cannot receive the Modulation, Pitch bender or Aftertouch messages.
☞Read the owner's manual of the relevant device.

Pressing the footswitch does not cause the Hold effect.

Please note that the Hold function does not apply to any one MIDI sound module which is set to a different receive channel.

The MIDI sound module connected to the PAD−80 cannot receive the Hold messages.
☞Read the owner's manual of the relevant device.

The sounds on the MIDI sound module are changed when a different Patch is selected on the PAD−80.

Program Change is assigned to the Pad.
☞Set the Program Change to the off position.

The basic channel of the PAD−80 is set to the same number as the receive channel of the MIDI sound module, and the System Chain is set to "Master".
☞Change the basic channel or change the System Chain to "Slave".

Sending the Program Change messages from an external MIDI device does not change the Patches on the PAD−80.

The System Chain is set to "Master".
☞Set the System Chain to "Slave"

The transmit channel of the external MIDI device is not set to the same number as the basic channel of the PAD−80.
☞Match the Channels.

The PAD−80 is set to the Patch Chain playing mode.
☞Push the Patch Chain Key to return to the normal Play mode.

The PAD−80 is set to the Edit mode.
☞Set the Edit Switch to the OFF position to turn the unit to the Play mode.

The Program Change set on the pad does not change the sounds on the MIDI sound module.

The MIDI channel set for the pad does not match the receive channel of the MIDI sound module.
☞Set the channels of the pad and the sound module to the same number.

The MIDI sound module connected the PAD−80 cannot receive Program Change Messages.
☞Read the owner's manual of the relevant device.

Data cannot be saved onto a memory card.

The memory card is not properly connected.
☞Insert the card securely until it clicks.

The protect switch on the memory card is set to ON.
☞Set the switch OFF.

The Patch data on the memory card cannot be copied.

The memory card is not properly connected.
☞Insert the memory card securely until it clicks.

No data is stored on the memory card.
☞Change to a memory card with Patch data, or refer to "Using a brand new memory card" on page 55.

A Patch on the memory card cannot be accessed.

The memory card is not properly connected.
☞Insert the memory card securely until it clicks.

No data is stored on the memory card.
☞Change to a memory card with Patch data, or refer to "Using a brand new memory card" on page 55.

Data transfer via Exclusive messages cannot be performed.

The connections are not correctly made.
☞Check the connections.

The basic channels of the receiver and transmitter are not set to the same number.
☞Match the channel numbers.

The Soft Thru is ON.
☞Set the Soft Thru OFF.

The MIDI sound module connected to the PAD−80 cannot receive the Exclusive messages of the PAD−80.
☞Read the owner's manual of the relevant device.

The Pan parameter has no effect.

The MIDI channel of the pad is not set to the same number as the receive channel of the MIDI sound module.
☞Match the channels.

The MIDI sound module connected to the PAD−80 cannot receive the Pan messages.
☞Read the owner's manual of the relevant device.

The edited parameter value has not been written,(the previous value remains).

You did not press the Enter Key after changing the Pad setting, Pedal Functions or Patch name.
☞This time, make sure that you hit the Enter Key after changing these values.

The Patch set in the Patch Chain is not selected.

The unit is not switched to the Patch Chain playing mode.
☞Push the Patch Chain Key in the Play mode.

There is a "＊＊" mark in the Patch Chain Track.
☞Set a Patch number in the step with the "＊＊" mark.

3. Blank Chart

● Patch

Patch Number		Patch Name	

(Pad)

		Internal Pad								External Pad					
		1	2	3	4	5	6	7	8	1	2	3	4	5	6
MIDI Channel															
Note Number															
Gate Time															
Velocity Curve															
Sensitivity															
Program Change															
Layer	1														
	2														
Layer Select															
Pan															

(Pedal Functions)

MIDI Channel		
Modulation	Modulation Delay	
	Modulation Depth	
Pitch Bend	Bend Select	
	Bend Depth	
	Bend Decay	
	Dynamic Bend	
After Touch	After Touch	
	A. T Threshold	

● Patch Chain

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32

4. Factory Preset Table

● Patch

Patch Number	11	Patch Name	TR-505 (DRUM)

(Pad)

		Internal Pad								External Pad					
		1	2	3	4	5	6	7	8	1	2	3	4	5	6
MIDI Channel		10	10	10	10	10	10	10	10						
Note Number		48	45	41	51	35	38	42	49						
Gate Time		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Velocity Curve		4	4	4	4	4	4	4	4						
Sensitivity		8	8	8	8	8	8	8	8						
Program Change		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer	1	OFF	OFF	OFF	OFF	OFF	OFF	46	OFF						
	2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer Select		—	—	—	—	—	—	V-SW	—						
Panning		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						

(Pedal Functions)

MIDI Channel		1
Modulation	Modulation Delay	OFF
	Modulation Depth	—
Pitch Bend	Bend Select	OFF
	Bend Depth	—
	Bend Decay	—
	Dynamic Bend	—
After Touch	After Touch	OFF
	A. T Threshold	—

● Patch

Patch Number	12	Patch Name	TR-505 (LATIN)

(Pad)

		Internal Pad								External Pad					
		1	2	3	4	5	6	7	8	1	2	3	4	5	6
MIDI Channel		10	10	10	10	10	10	10	10						
Note Number		62	63	68	67	35	39	65	41						
Gate Time		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Velocity Curve		4	4	4	4	4	4	4	4						
Sensitivity		8	8	8	8	8	8	8	8						
Program Change		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer	1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
	2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer Select		—	—	—	—	—	—	—	—						
Panning		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						

(Pedal Functions)

MIDI Channel		1
Modulation	Modulation Delay	OFF
	Modulation Depth	—
Pitch Bend	Bend Select	OFF
	Bend Depth	—
	Bend Decay	—
	Dynamic Bend	—
After Touch	After Touch	OFF
	A. T Threshold	—

● Patch

Patch Number	13	Patch Name	TR-626 (DRUM)

(Pad)

		Internal Pad								External Pad					
		1	2	3	4	5	6	7	8	1	2	3	4	5	6
MIDI Channel		10	10	10	10	10	10	10	10						
Note Number		50	47	43	53	36	40	42	52						
Gate Time		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Velocity Curve		4	4	4	4	4	4	4	4						
Sensitivity		8	8	8	8	8	8	8	8						
Program Change		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer	1	OFF	OFF	OFF	68	OFF	OFF	OFF	OFF						
	2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer Select		—	—	—	MIX	—	—	—	—						
Panning		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						

(Pedal Functions)

MIDI Channel		1
Modulation	Modulation Delay	OFF
	Modulation Depth	—
Pitch Bend	Bend Select	OFF
	Bend Depth	—
	Bend Decay	—
	Dynamic Bend	—
After Touch	After Touch	OFF
	A. T Threshold	—

● Patch

Patch Number	14	Patch Name	TR-626 (LATIN)

(Pad)

		Internal Pad								External Pad					
		1	2	3	4	5	6	7	8	1	2	3	4	5	6
MIDI Channel		10	10	10	10	10	10	10	10						
Note Number		64	63	62	41	65	66	75	69						
Gate Time		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Velocity Curve		4	4	4	4	4	4	4	4						
Sensitivity		8	8	8	8	8	8	8	8						
Program Change		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer	1	OFF	OFF	OFF	OFF	OFF	OFF	54	56						
	2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer Select		—	—	—	—	—	—	MIX	V-MIX						
Pan		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						

(Pedal Functions)

MIDI Channel		1
Modulation	Modulation Delay	OFF
	Modulation Depth	—
Pitch Bend	Bend Select	OFF
	Bend Depth	—
	Bend Decay	—
	Dynamic Bend	—
After Touch	After Touch	OFF
	A. T Threshold	—

● Patch

Patch Number	15	Patch Name	D−110 (PART 1)

(Pad)

		Internal Pad								External Pad					
		1	2	3	4	5	6	7	8	1	2	3	4	5	6
MIDI Channel		10	10	10	10	10	10	10	10						
Note Number		91	85	52	49	40	58	41	73						
Gate Time		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Velocity Curve		4	4	4	4	4	4	4	4						
Sensitivity		8	8	8	8	8	8	8	8						
Program Change		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer	1	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
	2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer Select		—	—	—	—	—	—	—	—						
Panning		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						

(Pedal Functions)

MIDI Channel		1
Modulation	Modulation Delay	OFF
	Modulation Depth	—
Pitch Bend	Bend Select	OFF
	Bend Depth	—
	Bend Decay	—
	Dynamic Bend	—
After Touch	After Touch	OFF
	A. T Threshold	—

● Patch

Patch Number	16	Patch Name	D-110 (PART 2)

(Pad)

		Internal Pad								External Pad					
		1	2	3	4	5	6	7	8	1	2	3	4	5	6
MIDI Channel		8	8	8	8	2	5	5	5						
Note Number		53	65	72	76	62	65	68	72						
Gate Time		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Velocity Curve		4	4	4	4	4	4	4	4						
Sensitivity		8	8	8	8	8	8	8	8						
Program Change		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer	1	60	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
	2	64	OFF	OFF	OFF	OFF	OFF	OFF	OFF						
Layer Select		MIX	–	–	–	–	–	–	–						
Pan		0	−31	0	+31	−31	+31	0	−31						

(Pedal Functions)

MIDI Channel		1
Modulation	Modulation Delay	OFF
	Modulation Depth	–
Pitch Bend	Bend Select	OFF
	Bend Depth	–
	Bend Decay	–
	Dynamic Bend	–
After Touch	After Touch	OFF
	A. T Threshold	–

MEMO

Roland Exclusive Messages

1. Data Format for Exclusive Messages

Roland's MIDI implementation uses the following data format for all exclusive messages (type IV) :

Byte	Description
F0H	Exclusive status
41H	Manufactures ID (Roland)
DEV	Device ID
MDL	Model ID
CMD	Command ID
[BODY]	Maindata
F7H	End of exclusive

MIDI status : F0H, F7H

An exclusive message must be flanked by a pair of status codes, starting with a Manufactures-ID immediately after F0H (MIDI version1.0).

Manufactures-ID : 41H

The Manufactures-ID identifies the manufacturer of a MIDI instrument that triggeres an exclusive message. Value 41H represents Roland's Manufactures-ID.

Device-ID : DEV

The Device-ID contains a unique value that identifies the individual device in the multiple implementation of MIDI instruments. It is usually set to 00H - 0FH, a value smaller by one than that of a basic channel, but value 00H - 1FH may be used for a device with multiple basic channels.

Model-ID : MDL

The Model-ID contains a value that uniquely identifies one model from another. Different models, however, may share an identical Model-ID if they handle similar data.

The Model-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Model-IDs, each representing a unique model :

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

Command-ID : CMD

The Command-ID indicates the function of an exclusive message. The Command-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Command-IDs, each representing a unique function :

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

Main data : BODY

This field contains a message to be exchanged across an interface. The exact data size and contents will vary with the Model-ID and Command-ID.

2. Address-mapped Data Transfer

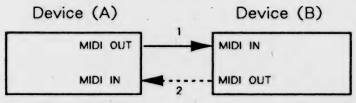
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory-resident records--waveform and tone data, switch status, and parameters, for example--to specific locations in a machine-dependent address space, thereby allowing access to data residing at the address a message specifies.

Address-mapped data transfer is therefore independent of models and data categories. This technique allows use of two different transfer procedures : one-way transfer and handshake transfer.

One-way transfer procedure (See Section3 for details.)

This procedure is suited for the transfer of a small amount of data. It sends out an exclusive message completely independent of a receiving device status.

Connection Diagram

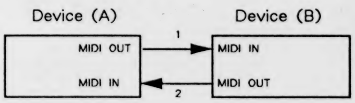


Connectionat point2 is essential for "Request data" procedures. (See Section3.)

Handshake-transfer procedure (See Section4 for details.)

This procedure initiates a predetermined transfer sequence (handshaking) across the interface before data transfer takes place. Handshaking ensures that reliability and transfer speed are high enough to handle a large amount of data.

Connection Diagram



Connectionat points1 and 2 is essential.

Notes on the above two procedures

*There are separate Command-IDs for different transfer procedures.
*DevicesA and B cannot exchange data unless they use the same transfer procedure, share identical Device-ID and Model ID, and are ready for communication.

3. One-way Transfer Procedure

This procedure sends out data all the way until it stops when the messages are so short that answerbacks need not be checked.
For long messages, however, the receiving device must acquire each message in time with the transfer sequence, which inserts intervals of at least 20milliseconds in between.

Types of Messages

Message	Command ID
Request data 1	RQ1 (11H)
Data set 1	DT1 (12H)

Request data # 1 : RQ1 (11H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.
On receiving an RQ1 message, the remote device checks its memory for the data address and size that satisfy the request.

If it finds them and is ready for communication, the device will transmit a "Data set 1 (DT1)" message, which contains the requested data. Otherwise, the device will send out nothing.

Byte	Description
F0H	Exclusive status
41H	Manufactures ID (Roland)
DEV	Device ID
MDL	Model ID
11H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

*The size of the requested data does not indicate the number of bytes that will make up a DT1 message, but represents the address fields where the requested data resides.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The same number of bytes comprises address and size data, which, however, vary with the Model-ID.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Data set 1 : DT1 (12H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, a DT1 message can convey the starting address of one or more data as well as a series of data formatted in an address - dependent order.

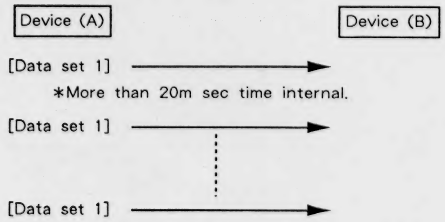
The MIDI standards inhibit non-real time messages from interrupting an exclusive one. This fact is inconvenient for the devices that support a "soft-through" mechanism. To maintain compatibility with such devices, Roland has limited the DT1 to 256 bytes so that an excessively long message is sent out in separate segments.

Byte	Description
F0H	Exclusive
41H	Manufactures ID (Roland)
DEV	Device ID
MDL	Model ID
12H	Command ID
aaH	Address MSB
	LSB
ddH	Data
sum	Check sum
F7H	End of exclusive

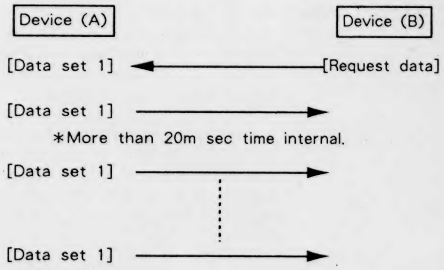
*A DT1 message is capable of providing only the valid data among those specified by an RQ1 message.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The number of bytes comprising address data varies from one Model-ID to another.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Example of Message Transactions

●Device A sending data to Device B
Transfer of a DT1 message is all that takes place.



●Device B requesting data from Device A
Device B sends an RQ1 message to Device A. Checking the message, Device A sends a DT1 message back to Device B.



4. Handshake- Transfer Procedure

Handshaking is an interactive process where two devices exchange error checking signals before a message transaction takes place, thereby increasing data reliability. Unlike one-way transfer that inserts a pause between message transactions, handshake transfer allows much speedier transactions because data transfer starts once the receiving device returns a ready signal.

When it comes to handling large amounts of data--sampler waveforms and synthesizer tones over the entire range, for example--across a MIDI interface, handshaking transfer is more efficient than one-way transfer.

Types of Messages

Message	Command ID
Want to send data	WSD (40H)
Request data	RQD (41H)
Data set	DAT (42H)
Acknowledge	ACK (43H)
End of data	EOD (45H)
Communication error	ERR (4EH)
Rejection	RJC (4FH)

Want to send data : WSD (40H)

This message is sent out when data must be sent to a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of the data to be sent.

On receiving a WSD message, the remote device checks its memory for the specified data address and size which will satisfy the request. If it finds them and is ready for communication, the device will return an "Acknowledge (ACK)" message.
Otherwise, it will return a "Rejection (RJC)" message.

Byte	Description
F0H	Exclusive status
41H	Manufactures ID (Roland)
DEV	Device ID
MDL	Model ID
40H	Command ID
aaH	Address MSB
	LSB
ssH	Size MSB
	LSB
sum	Check sum
F7H	End of exclusive

*The size of the data to be sent does not indicate the number of bytes that make up a "Data set (DAT)" message, but represents the address fields where the data should reside.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The same number of bytes comprises address and size data, which, however, vary with the Model-ID.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Request data : RQD (41H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.

On receiving an RQD message, the remote device checks its memory for the data address and size which satisfy the request. If it finds them and is ready for communication, the device will transmit a "Data set (DAT)" message, which contains the requested data. Otherwise, it will return a "Rejection (RJC)" message.

Byte	Description
F0H	Exclusive status
41H	Manufactures ID (Roland)
DEV	Device ID
MDL	Model ID
41H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

*The size of the requested data does not indicate the number of bytes that make up a "Data set (DAT)" message, but represents the address fields where the requested data resides.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The same number of bytes comprises address and size data, which, however, vary with the Model-ID.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Data set : DAT (42H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, the message can convey the starting address of one or more data as well as a series of data formatted in an address-dependent order.

Although the MIDI standards inhibit non-real time messages from interrupting an exclusive one, some devices support a "soft- through" mechanism for such interrupts. To maintaincompatibility with such devices, Roland has limited the DAT to 256bytes so that an excessively long message is sent out in separate segments.

Byte	Description
F0H	Exclusive status
41H	Manufactures ID (Roland)
DEV	Device ID
MDL	Model ID
42H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ddH	Data
⋮	⋮
sum	Check sum
F7H	End of exclusive

*A DAT message is capable of providing only the valid data among those specified by an RQD or WSD message.
*Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
*The number of bytes comprising address data varies from one model ID to another.
*The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Acknowledge : ACK (43H)

This message is sent out when no error was detected on reception of a WSD, DAT, "End of data (EOD)", or some other message and a requested setup or action is complete. Unless it receives an ACK message, the device at the other end will not proceed to the next operation.

Byte	Description
F0H	Exclusive status
41H	Manufactures ID (Roland)
DEV	Device ID
MDL	Model ID
43H	Command ID
F7H	End of exclusive

End of data : EOD (45H)

This message is sent out to inform a remote device of the end of a message. Communication, however, will not come to an end unless the remote device returns an ACK message even though an EOD message was transmitted.

Byte	Description
F0H	Exclusive status
41H	Manufactures ID (Roland)
DEV	Device ID
MDL	Model ID
45H	Command ID
F7H	End of exclusive

Communications error : ERR (4EH)

This message warns the remote device of a communications fault encountered during message transmission due, for example, to a checksum error. An ERR message may be replaced with a "Rejection (RJC)" one, which terminates the current message transaction in midstream.

When it receives an ERR message, the sending device may either attempt to send out the last message a second time or terminate communication by sending out an RJC message.

Byte	Description
F0H	Exclusive status
41H	Manufactures ID (Roland)
DEV	Device ID
MDL	Model ID
4EH	Command ID
F7H	End of exclusive

Rejection : RJC (4FH)

This message is sent out when there is a need to terminate communication by overriding the current message. An RJC message will be triggered when :

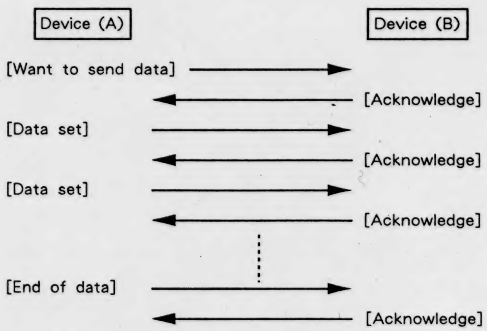
- a WSD or RQD message has specified an illegal data address or size,
- the device is not ready for communication.
- an illegal number of addresses or data has been detected.
- data transfer has been terminated by an operator.
- a communications error has occurred.

An ERR message may be sent out by a device on either side of the interface. Communication must be terminated immediately when either side triggers an ERR message.

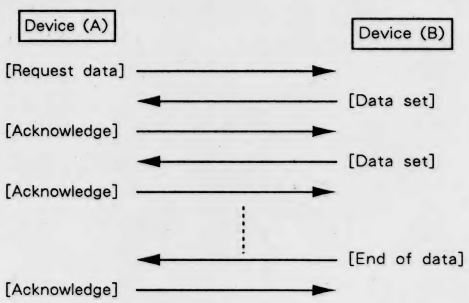
Byte	Description
F0H	Exclusive status
41H	Manufactures ID (Roland)
DEV	Device ID
MDL	Model ID
4FH	Command ID
F7H	End of exclusive

Example of Message Transactions

● Data transfer from device (A) to device (B).

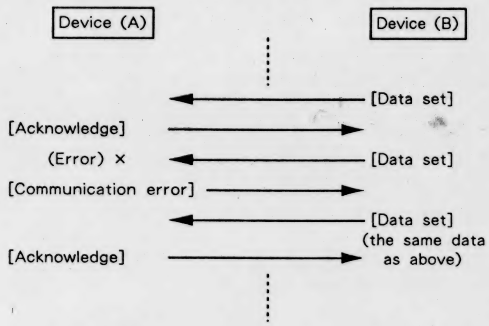


● Device (A) requests and receives data from device (B).

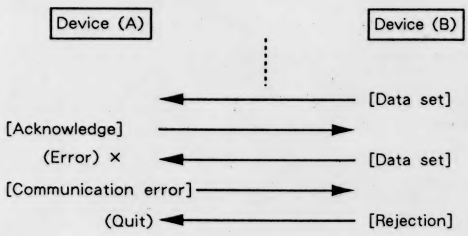


● Error occurs while device (A) is receiving data from device (B).

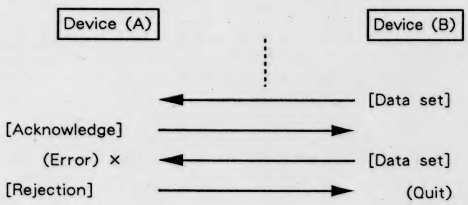
1) Data transfer from device (A) to device (B).



2) Device (B) rejects the data re-transmitied, and quits data transfer.



3) Device (A) immediately quits data transfer.



MIDI PAD CONTROLLER
MODEL PAD−80

MIDI Implementation

Date : Jun. 1. 1988
Version : 1.00

1. TRANSMITTED DATA

■ Note event

Note off

Status	Second	Third
9nH	kkH	00H

kk = note number : 00H - 7FH (0 - 127)
n = MIDI channel : 0H - FH (0 - 16)

Note on

Status	Second	Third
9nH	kkH	vvH

kk = note number : 00H - 7FH (0 - 127)
vv = Velocity : 01H - 7FH (1 - 127)

Note numbers and MIDI channels can be assigned to both built-in and external pads. Also the assignment you have made can be written together with a patch.

■ Program change

Status	Second
CnH	ppH

pp = program number : 00H - 7FH (0 - 127)

Program change numbers can be assigned to both built-in and external pads. When a patch is selected, the corresponding program change number will be transmitted. When the System Chain is set to "Master", the program numbers you have set for the pads are transmitted.
In addition to that,the program numbers corresponding to the patch numbers are also transmitted.

■ Control change

Modulation Depth

Status	Second	Third
BnH	01H	vvH

vv = Modulation Depth : 00H - 7FH (0 - 127)

Modulation can be set for each patch.
The depth of the modulation can be set using the control panel or the foot volume.
The Modulation messages are transmitted when a pad is hit.

Panpot

Status	Second	Third
BnH	0AH	vvH

vv = Panpot Value : 00H - 7FH (0 - 127)

Panpot parameter can be set for both built-in and external pads.
The panpot messages you set will be transmitted when a pad is hit.

Hold-1

Status	Second	Third
BnH	40H	vvH

vv = 00H (0) : off
vv = 7FH (127) : on

The Hold messages are transmitted when the hold pedal is pressed down and a pad is hit at the same time.

■ Pitch Bender

Status	Second	Third
EnH	llH	mmH

ll = Pitch Bender Value (LSB) : 00H - 7FH (0 - 127)
mm = Pitch Bender Value (MSB) : 00H - 7FH (0 - 127)

Pitch bender can be set for each patch.
The depth of the pitch bend can be set using the control panel of the foot volume.
The pitch bender messages are transmitted when a pad is hit.

■ Channel Aftertouch

Status	Second
DnH	vvH

vv = Channel Aftertouch value : 00H - 7FH (0 - 127)

Aftertouch can be set for each patch.
The depth of the aftertouch can be set using the control panel or the foot volume.
The aftertouch messages are transmitted when a pad is hit.

■ System Exclusive

Status	
F0H	: System Exclusive
F7H	: EOX (End of Exclusive)

The PAD-80 can transmit the entire data of patch parameters or patch chain via the Exclusive messages.
The details are explained in section 3.

■ Active Sensing

Status
FEH

These messages are transmitted in 240ms steps.

2. RECOGNIZED RECEIVE DATA

■ Program change

Status	Second
CnH	ppH

pp = program number : 00H - 7FH (0 - 127)

Any of the PAD-80's patches can be selected using the program change messages.
When the System Chain is set to "Slave", program change messages are received on the basic channel.
Read the owner's manual to study how the program change numbers correspond to the patch numbers and how to set the basic channel.

■ System Exclusive

Status	
F0H	: System Exclusive
F7H	: EOX (End of Exclusive)

The PAD-80 can receive the entire data of patch parameters or patch chain via the Exclusive messages.
The details are explained in section 3.

■ Active Sensing

Status
FEH

If the PAD-80 has received these messages once but does not receive any status data within 360 m seconds, it will decide that there is something wrong with the connction or connection cord, and therefore will no longer transmit the messages. (at the SOFT THRU is ON.)

3. EXCLUSIVE COMMUNICATION

The PAD-80 can receive or transmit the entire data of patch parameters or patch chain via the Exclusive messages.
The details are explained in the owner's manual.

The model ID of the PAD-80 uses 25H and the device ID uses the basic channel.

■ One Way Communication

Data set

Byte	Description
F0H	Exclusive status
41H	Manufactures ID (Roland)
DEV	Device ID
25H	Model ID (PAD-80)
12H	Command ID
aaH	Address MSB
aaH	Address
aaH	Address LSB
ddH	Data
:	:
sum	Check sum
F7H	End of exclusive

If the address (aaH,bbH,ccH) is not the assigned address, the message is ignored.

Adress Map

Address			Description
aaH(MSB)	bbH	ccH(LSB)	
00H	00H	00H	address of PATCH 11
00H	01H	00H	
00H	02H	00H	
00H	04H	00H	address of PATCH 12
00H	05H	00H	
00H	06H	00H	
:	:	:	
01H	7CH	00H	address of PATCH 88
01H	7DH	00H	
01H	7EH	00H	
10H	00H	00H	address of PATCH CHAIN track 1
10H	01H	00H	address of PATCH CHAIN track 2
:	:		
10H	07H	00H	address of PATCH CHAIN track 8

Patch parameters are not transferred individually; all the parameters are transferred in bulk.

MIDI PAD CONTROLLER
MODEL PAD−80

MIDI Implementation Chart

Date : Jun. 1. 1988
Version : 1.00

Function...		Transmitted	Recognized	Remarks
Basic	Default	1−16	1−16	Memorized
Channel	Changed	1−16	1−16	
Mode	Default	×	Mode 3	
	Messages	×	×	
	Altered	*********		
Note Number		0−127	×	
	True Voice	*********		
Velocity	Note ON	○ 9n v=1−127	×	
	Note OFF	× 9n v=0	×	
After Touch	Key's	×	×	
	Ch's	○	×	
Pitch Bender		○	×	
Control Change	1	○ Modulation	×	
	2−9	×	×	
	10	○ Pan	×	
	11−63	×	×	
	64	○ Hold 1	×	
Prog Change		○ 0−127	○ 0−127	Internal 0−63 Card 64−127
	True #	*********		
System Exclusive		○	○	*1
System Common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	×	×	
System Real Time	Clock	×	×	
	Commands	×	×	
Aux Message	Local ON/OFF	×	×	
	All Notes OFF	×	×	
	Active Sense	○	○	
	Reset	×	×	
Notes		*1 Patch settings or Patch Chain settings can be transferred.		

Mode 1 : OMNI ON, POLY
Mode 2 : OMNI ON, MONO
Mode 3 : OMNI OFF, POLY
Mode 4 : OMNI OFF, MONO

○ : Yes
× : No

5. Specifications

PAD−80 : MIDI Pad Controller

● **Pads**
Built−in Pads : 8
External Pads (optional) : 6

● **Memory Capacity**
Patches (internal memory) : 64
Patches (memory card) : 64
Patch Chain Tracks : 8

● **Parameters**
MIDI Channel
Note Number
Gate Time
Velocity Curve
Sensitivity
Program Change
Layer
Layer Select
Pan

(Pedal Functions)
MIDI Channel
Modulation Delay
Modulation Depth
Bend Select
Bend Depth
Bend Decay
Dynamic Bend
Aftertouch
Aftertouch Threshold

● **Displays**
Patch Display (7 segment LED × 2)
Function Display
(16 letters × 2 lines, back−light)
Level Indicators (LED × 5)

● **Control Sections**
(Front Panel)
Name Key
Copy Key
Card Key
MIDI Key
Pedal Key
Patch Chain Key
All Key
Enter Key
Parameter Keys
Value Keys
Bank Keys
Number Keys

(Rear Panel)
Edit Switch
Power Switch
LCD Contrast Control Knob

● **Connectors**
External Pad Input Sockets × 6
Patch Shift Sockets × 2
Hold Pedal Socket
Pedal Control Socket
Card Slot
MIDI IN Connector
MIDI OUT Connector
MIDI THRU Connector
AC Adaptor Socket (9V)

● **Consumption** : 350mA

● **Dimensions** :
550 (W) ×330 (D) ×60 (H) mm
21−5/8"×13"×2−3/8"

● **Weight** : 4.8kg/10 lb 9 oz

● **Accessories**
AC Adaptor for the PAD−80
APC 33 (All Purpose Clamp Set)
Owner's Manual
Quick Operation Table
Guide Book for MIDI

● **Options**
External Pads (PD−21/PD−31)
M−128D, M−256E (Memory Card)
DP−2 (Pedal Switch)
FS−5U (Footswitch)
EV−5/EV−10 (Foot Volume)
MDS−2 (Pad Stand)

PAD-80

26025232 '88-6-B3-2S

Roland